HYGEIA

THE HEALTH MAGAZINE

Published by the American Medical Association

November, 1928 — *25 Cents*

When Blindness Comes — *The Gallbladder--How It Works*

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Contributors to This Issue

Modern women paint well but not always wisely and the skin specialist sees the result. DR. WILLIAM H. GOECKERMAN presents the physician's view of the cosmetics craze.

DR. LESTER WHITAKER, who explains the gallbladder and its functions in admirably simple language, is an Eastern physician. HENRY S. CURTIS is director of hygiene and physical education of the Missouri state department of physical education. DR. PARK LEWIS, an ophthalmologist, has written for HYGEIA many articles about the eyes.

An invalid herself for several years, MRS. LETHA M. THURBER asks for a common-sense attitude toward the sick member of the family. The child labor examining physician of the Pittsburgh district, DR. L. M. SMITH, explains Pennsylvania's child labor law. From Pennsylvania too comes DR. JOHN A. KOLMER, who tells of the important part played by animals in the growth of medical science. DR. RAMSAY SPILLMAN, as a roentgenologist, knows much of the spread of tuberculosis.

DR. FRANK HOWARD RICHARDSON takes up this month the weight of the runabout child in the third article of his series. DR. W. M. GARDNER concludes a series in which he has exploded many tenacious theories about the teeth. The series on tuberculous physicians and their contributions, by DR. J. A. MYERS, continues.

JAY G. SIGMUND, an Iowa writer, will be remembered for his story, "Testimony," in the July HYGEIA. MRS. CLOVER HARTZ SEELIG also hails from the Middle West.

As an orthopedic surgeon, DR. ARTHUR G. BRETZ speaks with authority on the correction of abnormalities in babies' feet. E. F. KOHMAN is a research chemist of Washington, D. C.

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LEOPOLD
AUENBRUGGER
1722-1809

In making public my discoveries respecting this matter I have been actuated neither by an itch for writing, nor a fondness for speculation, but by the desire of submitting to my brethren the fruits of seven years' observation and reflexion.
—Auenbrugger

Health Almanac

NOVEMBER, 1928

1 HEAPED IN THE HOLLOWS of the grove,
The autumn leaves lie dead;
They rustle to the eddying gust,
And to the rabbit's tread.—Bryant.

2 BEAUTY IS only skin deep, but the ladies who worry about beauty are primarily interested in shallow things.

3 DO YOU REMEMBER the old-fashioned doctor who always began, "Lemme see your tongue"? At that he was better than the one who never wanted to see anything.

4 SIR JAMES YOUNG SIMPSON, British physician to the Queen, first attempted the use of chloroform as an anesthetic, Nov. 4, 1847.

5 I CAN CURE the Gout or Stone in some, sooner than Divinity, Pride or Avarice in others.
—Sir Thomas Browne.

6 TO THE COFFEE-HOUSE, and among other things heard Sir John Cutler say, that of his own experience in time of thunder so many barrels of beer as have a piece of iron laid upon them, will not be soured and the others will.
—Samuel Pepys' Diary, Nov. 6, 1663.

7 MARIE SKLODOWSKA CURIE, Polish-French chemist and physicist, Nobel prize winner in chemistry in 1911 and co-winner with her husband in physics in 1903 for the discovery of radium, was born Nov. 7, 1867.

8 TASTE makes waist.

9 FOR EVERY SOCIAL WRONG there must be a remedy. But the remedy can be nothing less than the abolition of the wrong.—Henry George.

10 OLIVER GOLDSMITH, author of "The Vicar of Wakefield" and of "She Stoops to Conquer" and a physician by training, was born in Ireland, Nov. 10, 1728.

11 EPHRAIM McDOWELL, Kentucky physician, who performed the first surgical removal of a diseased ovary, and "thus added annually a million years to the lives of our countrywomen" was born Nov. 11, 1771.

12 WILLIAM T. G. MORTON was granted a patent, Nov. 12, 1846, on the use of ether for anesthesia. From this he never benefited financially.

13 THE MAN WHO makes no mistakes never does anything; the one who makes too many mistakes gets fired. What a world!

14 A RECENT ITEM entitled "Why Our Insane Asylums Are Overcrowded" makes no mention of editors who start calendars like this and then have to keep them up for the rest of the year.

15 IT IS WRONG to trust the natural body to empirics, who commonly have a few receipts whereon they rely, but who know neither the causes of diseases, nor the constitution of patients, nor the danger of accidents, nor the true methods of cure.
—Francis Bacon.

16 WHEN AN AFTER DINNER SPEAKER lays his watch on the table, prepare for the worst.
—Abe Martin.

17 WILLIAM PAUL CRILLON BARTON, first chief of the bureau of medicine and surgery of the U. S. Navy, was born in Philadelphia, Nov. 17, 1786.

18 IT IZ HARD tew find a man ov good sense who kan look back upon enny occasion and wish he had sed sum more but it iz easy tew find menny who wish they had sed less.—Josh Billings.

19 LEOPOLD AUENBRUGGER, Austrian physician, who developed the method of diagnosis by thumping the chest, was born Nov. 19, 1722.

20 A WISE OLD MAN was Oscar Ding,
By few words was he moved;
He never would believe a thing,
Until it had been proved.

21 TIME HEALS all things, but the doctors have to be satisfied with a fair percentage.

22 IT IS UNLUCKY to be hit by an engine on a grade crossing on November 22 and sometimes it's just plain carelessness.

23 INFLUENZA BEGINS with a little cold and ends with a line beginning: "Here lies———."

24 THE PERCEPTION of the ludicrous is a pledge of sanity. A rogue alive to the ludicrous is still convertible.—R. W. Emerson.

25 THE TIGHTER THE SKIRT the smaller the brain.

26 THERE ARE TRICKS in all trades, and, as in bridge, the good players take most of the tricks.

27 "POLYGAMY is proposed for Europe," says a South Carolina paper, "but it is contrary to Scripture. No man can serve two masters."

28 "WE HAVE MEAT and we can eat,
Though high the cost of living,
So let us eat and each repeat,
A prayer of true Thanksgiving."

29 THANKSGIVING DAY.—"Of all the holidays observed in this country, there is none so distinctly American as Thanksgiving. It is a legacy of the Pilgrims, cherished because of the romance and traditions that surrounded it."

30 NOW COLD DECEMBER brings the snow
And bleak north winds begin to blow
Their piping, shrill cadenza.
The doctor buttons tight his coat
And sounds again the warning note
Look out for influenza.
M. F.

Painting the Lily

An Article on Cosmetics

By William H. Goeckerman

THE discriminating observer, daily confronted with Nature's superb ability to create satisfactory products and magnificent color schemes beyond the attainment of an artist's fondest hope, may well marvel at what an individual hopes to achieve by superficially applying some lotion, powder or paint to certain parts of the body. In its very nature such practice must usually be in the hands of a tyro. But even with most consummate artistry it cannot logically be hoped to improve on the beauty of a healthy skin.

To Perfume the Violet

If Michelangelo and da Vinci were unable to do full justice to the human countenance, the mirror of the soul, how could the average person hope, by the casual application of a dab of powder or paint, to improve on its appearance? "To gild refined gold, to paint the lily, to throw a perfume on the violet, is wasteful and ridiculous excess." It is likely that the prime motive of the user of the so-called cosmetics is to convey a temporary deceptive impression of beauty and thus increase admiration. As a matter of fact even this object is only occasionally attained, and just the opposite effect is often created. Whatever the result, if this is the motive its very essence is fraud.

But who could explain the why and wherefore? Possibly the present-day use of cosmetics is only a fad such as the bustle and the "rat" were in their day. If so, its vast proportions are carefully nurtured by efficient but pernicious advertising to insure its continuance. It is often pointed out that the use of cosmetics for self-adornment dates back to ancient days, and that their application for these purposes is a common practice of the savage. This may be true in part, as the prophets Ezekiel and Jeremiah apparently refer to their use for this purpose.

But there is no doubt that primitive peoples use them also for mystic purposes, and probably more often for the latter than for the former reason. Paints applied in a certain manner keep away evil spirits, and desirable spirits help to work havoc with the enemy. They are symbolic of certain elements of superstition in primitive religion. This meaning, of course, does not attach to my lady's present-day use of cosmetics. Their use can therefore have but limited traditional significance.

What Are the Objections?

Let us admit that today cosmetics are used purely for self-adornment and that this object is achieved in many instances. If the use of cosmetics increases the admiration of some of our fellow men, it may fulfil a desirable purpose. Yet there are material objections to indiscriminate use from the standpoint of health; some of them serious, others less so.

If it were possible to exclude the dangerous chemicals from hair washes, tonics and dyes, shampoos, complexion powders and toilet powders, moth and freckle lotions, face enamels, toilet waters, grease paints, face creams, skin bleaches and what have you, their use would

become a concern chiefly of the individual user. But even then they could not be used with impunity.

Nature evidently intended that air, light and changes of temperature should reach the skin; it needs this moderate stimulation. Just compare the rugged exposed skin to the pallid tender skin habitually covered by clothing. Absence of normal stimulation means lack of resistance, undernourishment and atrophy. The habitual use of cosmetics will prevent proper stimulation merely mechanically. While a pallid soft skin may seem distinctive to certain persons, it is not a healthy skin and it tends to early senility with all the undesirable features of a senile skin.

Hypersensitive Skins

The practicing skin specialist is almost daily confronted with perplexing problems as the result of the enormous use of cosmetics, even in cases in which the preparations used are comparatively harmless in themselves. Irritation of the skin over the areas to which cosmetics are commonly applied at once leads to suspicion and to careful inquiry into the cosmetic preparations the patient may be using, after excluding other more obvious sources. If the preparations are found to be harmless enough, then arises the problem of hypersensitiveness. May the individual have a natural or acquired hypersensitiveness to substances not harmful to the average person? It is the old story that "one man's meat is another man's poison." But it may be extremely difficult to find the "poison" in a given instance, and in the meantime it will cause the patient much physical discomfort and mental anguish. An illustrative case may help to clear this point.

He insists on the use of a specific hair tonic or dandruff cure.

A young, intelligent woman visits a skin specialist. She has marked irritation of the skin about the face and neck, which she says recurs periodically. After the physician explains to her the possibility of hypersensitiveness to some chemical, possibly in a toilet preparation, she conscientiously discontinues the use of cosmetics in every form. The attacks recur, however, and suspicion of cosmetics is almost abandoned. Accidentally one morning she notices that her skin shows signs of irritation while her roommate is applying a face powder. The composition of this powder is investigated and found to contain orris root. The patient is then carefully tested and found to be sensitive to orris root. Although orris root is harmless to the average person, to this patient it is a definite poison.

The "rat" had its day.

Once the facts are discovered, relief of her complaint is easy, but the case demonstrates how comparatively harmless substances may cause annoyance and how difficult it may be to find the offender.

Such problems as have been considered concern particularly the individual patient and physician and need not constitute a wholesale indictment of cosmetics. There are, however, fraudulent and menacing aspects to the trade in these substances, which clamor for correction. Such correction will probably not come without definite restrictions on the part of the federal government. Cosmetics should come within the scope of the food and drugs act. Education will not suffice, for so long as "women will not cease to paint themselves until you give them beauty lasting until death," there will be unscrupulous manufacturers to exploit the gullibility of the public.

As it is now there are any number of preparations on the market for which exaggerated claims are made. It is claimed that all imperfections of the skin and its appendages are easily corrected; yea, more, that the preparation, according to the pictures that accompany it, will produce beauty that would make the Venus of Milo jealous. All this beauty is easy to attain

if one uses the preparation advocated by the advertiser, which is said to contain some substance with unheard of medical potency. The virtues of this substance have been recognized by the advertiser only and he is willing to give to the public the benefit of his uncanny knowledge for a really very small sum, the inspired copy writer asserts.

Some of these preparations contain nothing but Epsom salt, calomel, or some other well known drug, and water. The price of a given quantity is from fifty cents up, even if the ingredients could be bought from any drug store for from one to five cents. The remainder is charged for a fancy label, bottle, cork and profit. But many a woman treasures a face cream of this sort as a positive discovery, uses it for twenty years and more, and would consider it a vital loss if she could not have a bottle with the precious label constantly on her toilet table. And many a man has critically insisted on the use of a specific hair tonic or dandruff cure in his favorite barber shop in preference to all others with beautifying qualities of a similar order.

Such duping of the public might seem ridiculous if the results were not at times sad, as almost any physician can testify. For often preparations are advertised as being absolutely harmless when they contain wood alcohol, corrosive sublimate, arsenous acid, paraphenylendiamine (a toxic aniline dye), sugar of lead, lead plaster, calomel, white precipitate, resorcin, and so forth. Even a person without any knowledge of chemistry will know that there are chemicals among these that cannot with impunity be left to indiscriminate use. It is this feature of the fraud, which puts dangerous chemicals ostensibly under the guise of harmless preparations into the hands of the public at large, that is reprehensible above all others. With due allowance for personal freedom, individual vagaries and preferences, it should be stopped by law, as it cannot possibly do any good and does much harm.

Oh, what a bustle!

These poisons when used daily over long periods of time will not only irritate the skin or produce a muddy, excessively pigmented skin, but some of them by their absorption through the skin will produce inflammation of the nerves with paralysis, asthma, anemia and possibly even more significant vague and less understood complaints as the result of chronic intoxication. Chronic poisoning by lead, mercury and arsenic may be obscure in origin. These metals are frequent offenders in industrial poisoning, the prevention of which occupies the interest of scientists in all parts of the world. Lead and mercury especially are easily absorbed by the skin, and the cosmetics containing these metals may be working subtle harm that cannot be evaluated by a medical examination.

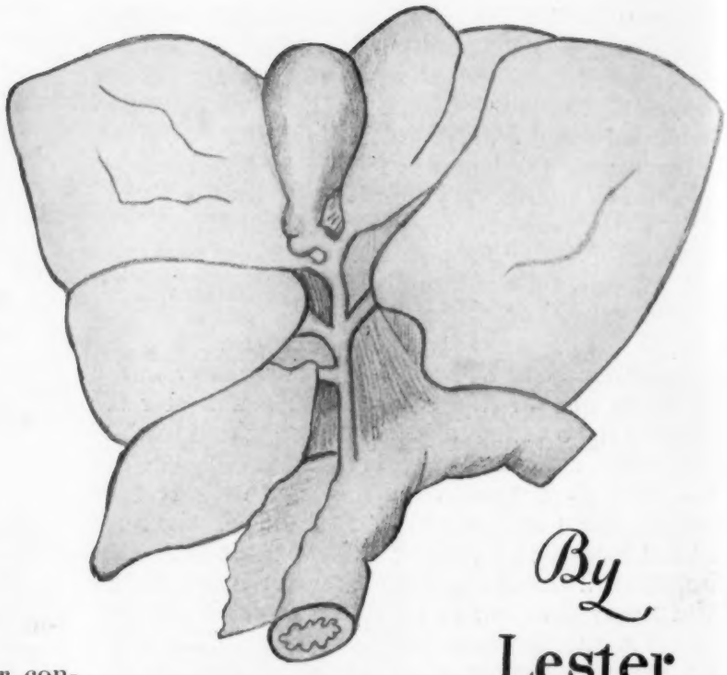
She has not been without a particular face cream for twenty years.

Some idea of the dangers to the public health of the indiscriminate use of cosmetics may be gained from a report for the year 1925 by the Department of Commerce, which gives the astonishing sum of more than $125,000,000 of business in cosmetics.

The Law Should Step In

Is the use of cosmetics in any form to be uncompromisingly condemned? Probably not, if the glaring fraud in these preparations could be removed from the trade. Although the critic on the basis of pure fact can probably see no value in any of them, mankind is governed in many of its activities by motives other than those dictated by the intellect. Justly so, because the emotions and instincts are too powerful to be ignored. If it were possible, therefore, to furnish the user honestly with harmless preparations, little objection could be raised. But to make unwarranted claims with the object of enormous profits is equivalent to selling "blue sky" stock. To sell poisonous drugs as harmless preparations to an unsuspecting public should be inhibited by legislation.

Your Gallbladder



Drawing showing the under surface of the liver with the gallbladder (above) and the system of ducts leading from the gallbladder and the different lobes of the liver into the intestine (below).

I. How It Works

By Lester Whitaker

THE little sac underneath the liver containing bile has remained an enigma and a challenge to students of medicine since ancient times. It is so simple and yet so baffling, and so full of possibilities for damage to the individual. The study of this little sac, its function, its diseases and their treatment is one of the most interesting chapters of medicine. It holds a fascination for the scientist, for the physician and for the thoughtful citizen.

One of the most impressive sights to an onlooker and one of the most terrible experiences for a patient is an attack of gallstone colic. Though it almost never destroys life, the patient often wishes that he might die, the pain is so terrific. The attack passes but it may come again under less favorable circumstances.

What are the causes behind this harrowing event, and what is its significance? How shall the patient be spared a recurrence of the attack? How shall human beings in general be guarded from such an ordeal and the dangers of the associated disease?

These are vital questions but they are possible of solution. This very hopefulness adds to the zest and interest of their consideration. But first we must know something about the gallbladder—what it is and how it works, and why it becomes diseased.

Is Storehouse for Bile

The liver, the largest and one of the busiest and most important organs of the body, has several functions, not the least of which is the production of a greenish, complex fluid known as bile. The bile is carried through a system of ducts from the liver into the intestine where it is employed chiefly in the digestion of fats.

Nature, like the wise man, guards against famine and the rainy day. For this reason we have a much larger liver than we actually need and it produces more bile than we can ordinarily use. But it is there as an insurance against damage and the ravages of disease. Also Nature, like the cautious and practical man, not only provides ample means for production of necessaries but she often provides for their storage and their rapid transportation to points of demand. The liver plant manufactures bile, and the gallbladder, which is connected with the duct leading from the liver, stores the bile between times.

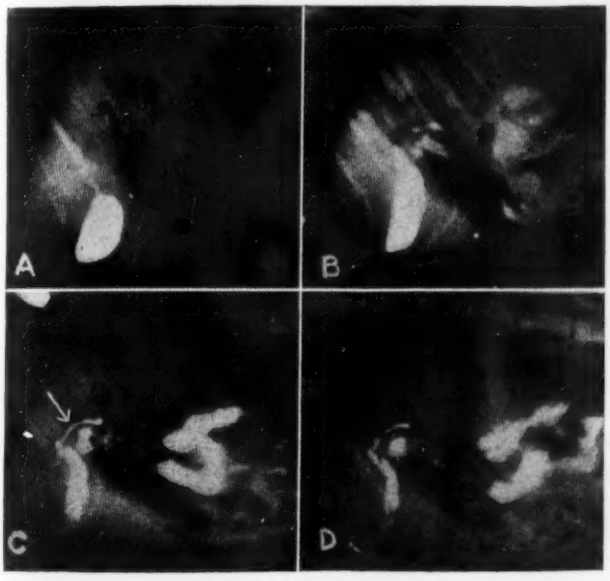
Discharges Bile at Times of Digestion

The gallbladder has within itself the remarkable power of discharging this stored bile into the intestine upon demand for digestion. Figure 1 illustrates the position of the gallbladder in relation to the liver and the ducts leading from the liver and the gallbladder to the intestine. There is a valve at the entrance of the duct into the intestine, which closes between meals, allowing the bile to back up into the gallbladder. When a meal is taken the gallbladder contracts by the action of the muscle in its wall and forcibly expels its contents through the duct, past the valve and into the intestine. Figure 2 illustrates this process.

It has probably struck you that the gallbladder is rather small to warrant so much emphasis as a storage receptacle for bile. But nature disposes of this difficulty in a truly remarkable way. The gallbladder is lined with

a delicate membrane thrown into a profusion of folds, which dip down into the watery bile that comes from the liver and actually drink up the fluid in it, much as the sun draws the water from the sea, leaving the salts and solids behind. Thus the bile is greatly concentrated and the gallbladder can store from ten to twenty times as much of the essential constituents as would otherwise be possible.

Imagine a gallbladder twenty times the size of that in figure 1 and see if it assumes significance



A cat's gallbladder has been filled with an oil containing iodine, which makes it visible under the x-ray. The four x-ray photographs show the emptying process of the gallbladder after a meal. A shows the gallbladder as an all-white area; it is resting between meals. B shows the gallbladder beginning to contract one hour and a half after a meal. In C, the gallbladder is still contracting three hours after the meal. The oil, representing bile, is passing down the narrow duct (arrow) into the intestine. The irregular white area on the right represents a large amount of the oil in the intestine which has been discharged by the gallbladder. In D, the gallbladder still contracting four hours after the meal has discharged most of its contents into the intestine.

as a reservoir. But Nature is economical of space and provides this concentration mechanism. It is somewhat like pressing hay into bales before putting it into the barn; a smaller barn is required.

Thus the gallbladder is a hollow organ associated with the liver, which stores bile during the intervals between meals and discharges it into the intestine upon demand for digestion.

How Diseases of the Gallbladder Occur

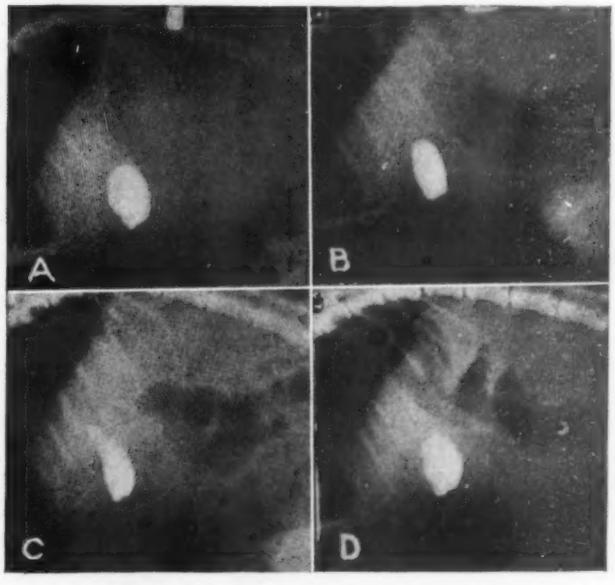
When an organ in the body fails to carry out its proper function it becomes subject to disease; on the other hand an organ affected with disease arising from some external cause cannot function properly. This is what physicians term a vicious cycle, which may be expressed thus: abnormal function ⇄ disease. The principle applies to the gallbladder in an interesting manner.

We have seen that one of the functions of the gallbladder is the discharge of its contents periodically after meals to further digestion. Let us see how this function might be disturbed and trouble ensue.

The body is a whole made up of interdependent parts, all connected by the same nervous system, all bathed in the same blood. What affects one part therefore affects all, but of course closely related parts have a greater influence upon each other. Thus disturbance of the stomach would affect the gallbladder more than the kidney, and trouble with the kidney would affect the urinary bladder more than the stomach.

When Gallbladder Fails to Empty

It is a striking fact that a severe emotional disturbance may suddenly upset digestion, even to the point of vomiting. As far as we know emptying of the gallbladder depends on digestion. Assuming this, conditions that upset digestion will stop the emptying of the gallbladder. It has been shown experimentally that an animal's gallbladder will not empty if the animal happens to be ill, for instance with distemper, probably because digestion in the stomach and intestine does not proceed normally under such conditions. Figure 3 illustrates this point. Also, the giving of certain drugs that stop digestion stops the emptying of the gallbladder. It is easy to see that in patients suffering from severe illnesses, such as typhoid fever,



These x-ray photographs illustrate the failure of the gallbladder to empty after a meal because the cat was ill with distemper. A shows the gallbladder before feeding. B shows the gallbladder one-half hour after a meal; there is a slight contraction of the organ. C shows conditions one hour after feeding; a moderate contraction is shown by elongation but there has been no emptying. In D, two hours after feeding, the gallbladder has relaxed and returned to its original state. Owing to the poor condition of the animal, contraction has been too feeble to produce emptying. The gallbladder may thus fail to empty for days, favoring gallstone formation.

diabetes and pernicious anemia, the gallbladder might not empty properly.

It is well known that injudicious eating habits such as stuffing, taking overrich or irritating food, too frequent meals, or late suppers, will upset the digestive tract. Under such abuse the stomach does not empty normally, the food remaining there "like lead," or it may even be rejected. Digestion failing then, the gallbladder will not empty.

Thus we see that a severe disturbance of general bodily function, severe organic disease or a disturbance of the digestive tract may prevent the gallbladder from discharging its contents after meals. How does this failure of the emptying activity lead to disease?

It will be remembered that the gallbladder has another function besides expulsion of its contents during digestion, that of concentrating the bile in order that more may be stored in the gallbladder for use when needed. As we have noted, functional disturbance or organic disease may prevent the gallbladder from emptying for long periods of time. This allows concentration of the bile in the gallbladder to continue to the point at which its dissolved substances may crystallize out and produce gallstones. Masses resembling gallstones have been produced in the gallbladders of animals simply by preventing their emptying for several days.

Formation of Gallstones

But on account of the complexity of the body, abnormal processes such as gallstone formation seldom have single causes. Under certain conditions the constituents of the bile may vary. Through some disturbance in the liver or elsewhere the proportion of dissolved substances in the bile going to the gallbladder may be increased. Thus it is easy to see how failure of the gallbladder to empty, with the resulting long continued concentration of its content, would more readily lead to the crystallization of these dissolved substances from an already overloaded bile.

One of the chief substances thus concerned is cholesterin, a crystalline material (when pure, related to fat) always present in the body and vitally associated with its processes. Though the full significance of cholesterin in health and disease is not understood it is known that it is increased in the bile under certain conditions. Overfeeding of fats or large quantities of animal foods rich in cholesterin will result in increased cholesterin in the bile.

But overfeeding in a general way, through disturbance of the digestive processes, results in failure of the gallbladder to empty. Thus there is a situation favorable to gallstone formation—stagnation in the gallbladder of bile containing abnormally large amounts of cholesterin. It is significant that cholesterin is the chief constituent of gallstones.

Other conditions may result in increased cholesterin and stagnation of bile in the gallbladder. During pregnancy the digestive tract may be upset and the gallbladder fail to empty; also cholesterin in the bile is often increased. It may be significant that gallstones are more common in women who have borne children.

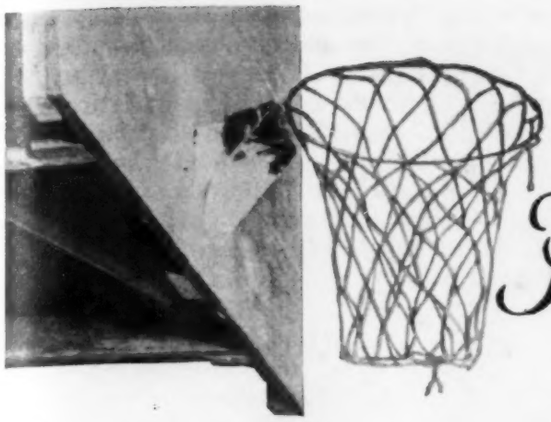
For years it has been held that gallstone formation is intimately associated with, or is the direct result of, infection of the gallbladder with bacteria. Bacteria are often found in the wall of gallbladders containing stones and also gallstones have been produced experimentally by infection of the gallbladder. It is probable that the resulting inflammation of the wall of the gallbladder interferes with the action of its muscle in such a manner as to prevent contraction. Thus emptying would not occur and the resulting stagnation of bile in the gallbladder would be favorable to gallstone formation.

There is much experimental and clinical evidence in support of the foregoing theory of the formation of gallstones although it is partly speculation. It is presented to the reader in order that he may understand something about an important condition of disease and also that he may have some idea of the complex and difficult problems with which medical men are concerned.

Attempting to Avoid Gallstones

But this much is certain. If a person avoids overrich foods and conditions or habits that lead to disturbances of digestion, or failing in this, pursues appropriate treatment, his chances of having gallstones will be diminished.

The next article will describe briefly some of the conditions in and about the gallbladder when this organ becomes diseased and the symptoms resulting therefrom and will explain methods for detection of such conditions and their treatment.



Should Girls Play Interschool Basketball?

By Henry S. Curtis

THERE is a great increase of interest in athletics among girls all over the world. In Germany, France, England and America we find the same new enthusiasm. Most women physical directors and school authorities believe that contests for girls should be confined to intramural athletics rather than to interschool competition such as men have. But it is by no means certain that women and girls are going to abide by the decision of school authorities. It is a part of their new feeling for liberty and equality of opportunity that they should be allowed to enter interschool competition if they wish.

Such competition of girls in basketball in the past has often been injurious. It has taken place by boys' rules, under men coaches, and with long halves and with inadequate training to bear the strain involved.

In Illinois, the rules permit girls to compete only in volley ball and tennis, while in Maryland they may compete in tennis, playground ball, volley ball and dodge ball.

The Women's Athletic Federation has stood uniformly against interschool competition for girls, particularly in basketball, and has insisted that when contests did take place the girls should be in charge of women physical directors, should play quarters rather than halves and should always play by girls' rules.

Of the colleges, considerably less than 10 per cent allow women to compete in interschool basketball, though such competition is doubtless less objectionable for college women than it is for high school girls. Nearly all women physical directors in colleges are opposed to it.

Some of the reasons given are the following: On the social side it is said that women have not been trained for interschool competition and that they do not thus far have the traditions of sportsmanship that have been impressed upon men's teams for generations; they are poor losers and often lose their tempers along with the game. It is further asserted that girls are nervously more unstable than men and are consequently more affected in the way of distraction from their studies, in the loss of sleep before and after games and in general nervous injuries. It is not good social policy to have girls travel about the country for interschool contests. Ofttimes there is no suitable place for changing their clothes or for taking showers after the game. Remarks by the spectators are often discourteous or even insulting, and the publicity in the papers is usually not the kind that emphasizes feminine ideals.

On the physical side it is said that woman has a much smaller heart than man and that basketball involves a continual strain which a small heart is not well qualified to stand, often resulting in the girl's fainting or being unable to stand at the end of the half. Strains at the knee and about the body are more injurious

to girls than to boys. Bruises on the breast and abdomen are likely to be serious. Jumping and falling sometimes result in displacements which may require an operation to prevent sterility.

All these objections are more serious where girls are playing by boys' rules with men coaches. Many former women players believe that these contests were injurious to them.

However, this question is far from settled. Basketball by girls' rules, played in quarters, after adequate training and with a competent woman physical director in charge is quite different from basketball played in halves, by boys' rules and under a man physical director. It may be that when basketball has been led up to by other less strenuous games and when adequate preparation has been given in sportsmanship, we shall be ready to hold interschool competitions for girls of which the educational authorities can approve.

When *Blindness* Comes

By Park Lewis

IN THE event of any great disaster there are those who are overwhelmed and crushed by it; others resent it and vainly fight against it, but still others accept it as a challenge and rise superior to it.

The force of such a blow may be lightened if a person is in some degree prepared for it. It gives one an opportunity to become adjusted to new conditions and to carry on with more limited equipment.

Of all the evils to which we are subject there are few that excite greater apprehension than the consciousness of oncoming blindness. The reaction to which this knowledge gives rise is largely conditioned by the temperament and former habits of the individual. To the average man or woman to whom the possibility of such an impending calamity has never occurred, the first impression is one of terror, an unreasoning fear of being left in permanent darkness. The shock, if it comes with unbroken force, seems to inhibit the functioning of other unimpaired faculties. The things that he has been in the habit of doing automatically and unconsciously seem to be no longer possible to him. He is appalled at the imminence of his misfortune and he exaggerates its possible effects on his activities.

If blindness comes suddenly and completely he is for a time unable even to think or reason as before. He is apt to be fearful of the things about him. He walks over the even floor or garden path, which he knows to be perfectly level, haltingly and timorously, putting one foot tentatively before the other in search of pitfalls that he knows do not exist. He feels for the stairway that he has climbed a hundred times as though his feet had never treaded the well known steps, and his sleeping room becomes a labyrinth in which he is at first unable to orient himself.

If during this period in which his faculties are benumbed he is not wisely guided and given the assurance that there are still large possibilities open to him, the difficulty of his regaining confidence is increased. If a year is allowed to go by without any effort being made to reestablish himself in the activities of life, an inferiority complex may be established, which it will be hard to eradicate. He will become apathetic and will accept the conclusion that his usefulness is over. He has no longer a place in the world and he is apt to sink into a condition of depression from which it will not be easy to raise him.

It is of the greatest importance, therefore, that the psychology of those over whom blindness is pending be recognized by their friends and household associates, for on them will rest much of the responsibility of guiding the patient as a doctor might through a difficult and trying period.

Learning to Be Blind

The person should prepare for the oncoming of blindness as he makes ready for any other great adventure. If the blindness is temporary, such as comes during the inception of developing cataracts, the fact must be made clear that many people go for years with partial sight without seriously interfering with their daily avocations. The person must know, too, that

operative measures are largely successful and that the probationary period through which he must pass before sight can be restored may be usefully occupied in developing hitherto unused or undeveloped faculties. If the loss is permanent, then there should be as promptly as possible an adjustment to the conditions as they must subsequently be.

It must not be assumed that the initiative in "coming back" can be taken by one upon whom the blow of blindness has fallen. It is the friends who must form a helpful bodyguard around him. Too much must not be expected of him at once. His courage and self-reliance must be the result of gradual growth. Meanwhile, the utmost degree of patience and consideration must be shown to him. He will be like a child learning to walk, with even more timidity than that of a child. He will have great difficulty in not upsetting his glass at the table and in locating the food on his plate. Accidents will increase his nervousness, but a touch here, a word as to what is being passed to him and where it is placed, may be given helpfully and without causing embarrassment if there is always with it a measure of sympathetic understanding.

Apparatus for writing without seeing.

To him who is born without sight or whose eyes have been lost in early life the condition is different. He has long since adapted himself to his limitations. He is exhilarated by the spirit of adventure that takes him in dangerous places. He has learned to supplement his lost faculty by the others that still remain to him. He has acquired courage through necessity.

As he walks along the roadway he feels the changed atmospheric pressure on his skin and he knows that he has come to an open space. He can tell from the echo of his footfalls whether he is passing a house or a tree. He knows whether the robin is singing on the lawn or on the fence-top. He discriminates among the odors that come to him from the open garage, the pipe of the workman or the delicate perfume wafted from the garments of a passing woman. The touch of a hand rail tells him as accurately as would another's eyes the house that he is passing and he can assure himself how far it is to the street crossing beyond. His every sense is keenly alert and for him it is a delight to make his mind do for him what others less well trained are obliged to learn through the easier medium of sight.

The subconscious control of coordinated movements sometimes manifests itself in the blind in remarkable ways. This has been interestingly illustrated in fiction by Bulwer Lytton in the "Last Days of Pompeii." It was the blind girl Lydia whose familiarity with the roads enabled her to lead her seeing friends to a place of safety when the rain of ashes turned the day into the blackness of night.

In actual life a similar instance occurred in the case of a blind mountaineer who acted as a guide through the most difficult trails in the mountains of Tennessee. As he did not depend on his eyes but on other senses, which he felt but could not describe, this was done with equal readiness by day or by night. By a curious readjustment he lost this faculty after his eyes had been successfully operated on for cataract and he was given his sight.

The fact is that most of us use our eyes at the expense of our intelligence. The pictures of the passing world that are so constantly formed on the retina are blotted out again without leaving more than a passing impression on our memory. Test yourself, the next time that it suddenly occurs to you, by trying to recall the objects that you have seen in the street block through which you have just been walking and you will find how vague and impermanent have been the impressions made.

Shut the book that you have been reading and you will be startled to learn how little of it you have made your own. We all, to a greater or less degree, look without seeing. The reason is, of course, that all our avenues of sense impression are pathways leading to the innermost tabernacle within which we live and until we take conscious mental note of the host of visitors clamoring for admission and invite those whom we wish to enter, all of them remain merely in the outer courtyard. We know that they are milling about in the vestibule but they do not enter until we admit them.

Sometimes, indeed, we do leave the entry door so widely open that all comers troop in indiscriminately and so fully occupy the premises that there is no room for the desirable ones that we would gladly have as permanent guests, and so the home of the mind instead of being kept in an orderly and systematic condition is so cluttered with unimportant things that there is no room for those of real value.

The Advantages of Being Blind

The blind, indeed, have in certain respects a marked advantage over those of us who do not use a rigid and authoritative control over all our faculties. The blind person must in the economies of life have a place for all the things that he uses and each must be kept in its place. The result otherwise is confusion worse confounded. He must above everything else learn quickly how to be blind. If his blindness is inevitable and permanent he must be helped as soon as possible to adjust himself to it. All is by no means lost when the lights go out.

From Homer down through Milton to the present day are the records of numberless men and women who have made of their misfortune an asset rather than a liability.

A graduate of Columbia University who had never seen from birth found it necessary to tutor after receiving his degree. The only opportunity that offered was in mathematics, in which he had not majored. He studied in advance of his pupil and ended by writing an original work on the integral calculus, for which he received an endowment scholarship that paid him an income for life.

The pupils in the New York School for the Blind at Batavia compete successfully in debates, in musical performances and even in athletics with those of corresponding age in the city schools and have won several goblets as trophies of their ability.

The limitation of function by the loss of any faculty but that of the mind is a challenge that will act as a spur to the courageous soul. By drawing the curtains on the outer world he secures a degree of mental concentration that is denied the sighted.

A Remarkable Demonstration

Recently was witnessed a most amazing exhibition in the New York Institution for the Blind. In one of the daily classes in the beautiful school at the Bronx were gathered children from 12 to 13 years of age who were fairly representative of the ordinary east side child. Among them were children of half a dozen nationalities, Germans, Irish, Hebrews, negroes and others, all of them blind. These children were given three numbers at random which any one might choose, and they were directed to multiply these by three other numbers such as 972 and 628. Problems like this the class

Athletics in a school for the blind. None of these children can see.

did aloud in concert without the intervention of their raised point slates. They were able to do this just as quickly and quite as accurately as any of the sighted observers could have done it with pencil and paper.

These children are taught the multiplication table not only through the twelves but through the twenty-fives. In this was demonstrated a degree of concentration that is not exceeded, if it is equaled, by children of their age anywhere.

Must Learn to Concentrate

When we note that the average clerk in the store must take a pencil and paper if he would add two or three simple numbers we wonder if there is not something wrong with an educational system that makes such a difference possible. The fact is we read too much, we think too little, we dissipate mental energy through unthinking reading. The habit of skimming through the daily newspapers with the intention of forgetting what we read is demoralizing in the extreme. It tends to make a sieve of the mind.

The custom of requiring that a lesson be read and reread again and again that it may be fixed in the mind shows a lack of mental training.

If the long school hours with added night study overtaxing and fatiguing the mind of the student were more profitably spent with shorter hours and greater concentration, there would be less need of correcting small defects with glasses than there is today. If an eight hour day is adequate for a working man it surely should be more than sufficient for a growing child.

A method of teaching foreign languages that fails to give conversational fluency after years of study shows a fundamental weakness in the system employed. This is the more obvious when a street gamin from Italy or Russia will pick up a usable vocabulary enriched by the most modern slang in as many months.

With the blind, concentration comes more easily. They have not the multitude of visual distractions that are constantly luring the sighted from one object to another. No one will for a moment think that the loss of sight is not a tremendous misfortune but the brave soul can be helped to use it to his advantage. Certain things he must continue to do and these are as far as possible all of the things he has heretofore been in the habit of doing.

Did he walk before he became blind? Then let his posture be erect and let him go straight on with his head bravely in the air. To stumble and halt is a mental not a physical necessity. By using his every remaining faculty it will not be necessary for him to use a cane. His friend will tell him when to avoid a mud puddle and when there is a rise or a fall in the pavement. A slight touch on the arm will be sufficient indication to guide direction.

Painting by a woman who sees only blurred impressions of objects. She has only 2 per cent sight remaining.

It is easy, did we but know it, to write with the eyes blindfolded. Some little auxiliaries are necessary but those who are accustomed to using a pen or a pencil can continue to do so without watching the formation of the words.

Writing Without Seeing

Writing without seeing the ruled lines on the page or indeed writing on paper without rulings is much more easily accomplished than one would imagine. For practical purposes it is better to use a pad with sufficient paper to make the edges readily apparent to the fingers. Vertical in preference to slanting letters should be employed.

A rubber band is passed over the pad at just such a distance as will bring the pencil point where the writing should begin. Two other light bands are passed vertically around the pad at about half an inch from each edge of the paper. As each line is completed the horizontal band is slipped down an inch. The resistance of the vertical band striking the pencil point gives warning that the edge of the paper is near but leaves sufficient space to finish the word begun. By keeping the little finger on the horizontal band (a ruler will serve equally well) even and legible writing may be produced with little practice. If this practice is begun before sight wholly fails a facility may be developed

that will give a degree of confidence and assurance that will help to keep up the morale when the darker days come.

The things that may be done by those with exceedingly limited sight are surprisingly numerous. It will be a wholesome and diverting exercise for the intelligent man or woman who feels that his eyes are ceasing to be dependable to devise new methods of keeping in touch with former activities.

Sightless Excel in Indoor Games

A better game of chess can be played with the eyes closed than with them open because by visualizing the moves on the board the whole game may be pictured in the mind; with dominoes and checkers the same is true. The blind play cards with interest and satisfaction by having the designations pricked with a pin in a corner of the card. These may readily be read by touch. It is necessary only that each player name his card as he lays it on the table. This requires, of course, an unusual degree of concentration but it is a delightful mental exercise for those of trained mind. A multitude of mechanical things may be satisfactorily done by those without sight. A man and woman both of whom were wholly blind kept their little home immaculate by their own efforts.

A Blind Landscape Painter

Perhaps the most unusual exhibition of skill on the part of one with almost no sight is landscape painting. The woman by whom this is done is a gifted poetess with an artistic instinct. She has but 2 per cent sight remaining.

"When I hold things about an inch away," she writes, "the crescent of cornea that is clear lets me see, such as it is, but the focus is so bent and awkward that it would be out of all range of possibility to call this dependable sight.

"Mind plays such a part in all I do. A round brown thing before me may be a blurred painting, a cookie, a cup of coffee, the top of a box or any one of a dozen round brown things, but my mind knows. It may not seem quite brown and surely not very round and yet my mind sees the more correct roundness, the more accurate brownness.

"I may not see the object at all but a delicate touch, the fragrance, the presence of associated people, all bring to my mind that it is time for a cup of coffee, or that the box is on the table—a mental conception which is thereby interpreted and understood."

Sometimes her interpretations are ludicrously incorrect. "I noticed some green when calling on a friend and thought it a wonderful barn. Before I stopped visualizing I could even note the paddock and I was called out of my raptures of such a fine sight by being told by my friend that she had recently dyed a frock green and that it was flapping on the line near a window. I had not seen the window nor the wall but thought myself in an open sunroom and that just outside was the barn."

Yet with such limited vision as to give merely a blur of color this clever woman paints landscapes.

Fog Failed to Spoil His View

The late Sir Francis Campbell, who had never seen light since birth, was a most adventurous spirit and bicycled over England with a companion behind. He climbed Mount Blanc but on reaching the top the party found itself enveloped in a heavy fog. The blind man said that he alone saw the Alpine grandeur. He visualized it in his mind.

A man lost the sight of one eye in childhood and an accident destroyed the other in middle life. He stands like a soldier. No one can tell a story better than he. He keeps his associates in a roar of laughter. "How can you smile," some one asked him, "under such an affliction?" "That I may not weep!" was his answer.

When an informed opinion pronounces blindness inevitable it is better to accept the verdict as final and prepare at once to adjust oneself to the new conditions. Nothing is gained by permitting the futile experiments of quacks and fakers who hold out optimistic hopes that are actuated only by ignorance and cupidity. Certainty, even of blindness, will be followed by a degree of resignation and adaptation, and then will come the joy of the conqueror as each day sees a new achievement.

The Courageous Blind

The things that make golf the most popular game in America are its difficulties and its hazards. The joy of life is not in doing the easy things but in doing those that tax our skill, our courage and our energy. Life itself is a great adventure in which are many obstacles to be overcome. When these are to be met in the dark the supreme test of courage is shown in the way in which they are encountered. "How did she take it?" was asked of the mother of a fine surgeon taken off in the prime of life. "She took it standing," was the reply.

Could a higher tribute be paid to the courageous blind?

If those who are to assume the new and greater handicap of blindness in life's struggle can learn to look on it as a challenge to be bravely and cheerfully met, it will at least help to lessen the unhappiness that such an affliction brings.

Should We Pamper the Invalid?

By

Letha M. Thurber

The invalid gets the thickest cream, the first strawberries, the first chance at the paper, the sunniest room.

PECULIAR stories are told of persons who, although they apparently couldn't walk a step and hadn't walked for years, in a moment of danger or extreme necessity actually ran. Few of us would have imagined that these persons really could have walked before, and we would have hesitated to suggest or to insist on such action. This only goes to show that the human race will never exert itself unless Old Man Necessity gives it a "kick in the pants, and a sock in the jaw."

But before we blame the invalid for his lack of self-confidence, let us examine the circumstances that have made him dependent and keep him so. By this I do not mean his sickness or disability but his environment and the mental attitude of himself and his friends.

Surrounded by "Don'ts"

As soon as the terrible casualty descends, doctors, nurses, relatives and friends begin to educate the patient to his new condition. Before, he has been only a part of a great whole; now, he becomes the center of the circle, with "do's" and "don'ts" forming the circumference, and with daily advice, admonition, caution and instruction building the imprisoning wall ever higher. Bewildered by the new environment, ignorant of the wisest course and taught to reverence authority, the patient submits.

Almost any person can survive several months of such influences and be little affected by them. But let the sickness continue for a year or longer and unconsciously his entire attitude will begin to change. His selfishness will increase, his initiative will decrease and his will power will weaken. How can it be otherwise? He gets the thickest cream, the first strawberries, the first chance at the morning paper, the sunniest room, the warmest blankets, and so on ad infinitum. Maybe he needs them. It is right for him to have them. We love to do for him. But how about the poor receiver? How can he help but grow selfish?

Will Power Becomes Weakened

We choose his food, his books, his clothes, his activities. What chance has he to exercise his power of choice? If he never is permitted to refuse the evil or choose the good, what happens to the will? If he tries a new line of amusement or endeavor, some one is always ready to tell him it is too much for him. Then if he persists in spite of the advice and the next day finds him not so well, another is ready to "wonder how in

'tunket' he ever expects to get well when he does such crazy things and won't take a telling." If he still dares to persist, he is labeled stubborn and cantankerous.

It is small wonder that some become rebellious, as did one young woman who remarked to her husband when he had chided her for some overexertion, "If I could get two people to agree on what was safe for me to do, I'd gladly do it. But what one allows, another condemns, so I might as well do as I please, seeing I can't please any two."

Another factor that perpetuates invalidism is the loss of vision. The cripple has walked so long with a crutch that he cannot imagine how it would be without its support. Or exertion leaves the invalid so exhausted that the prospect of a whole day's labor means only intolerable agony, and he thinks of the future in terms of the present. The past when he was strong and active has been largely obliterated in his memory by the keen carving of pain and his conception of what he might be is restricted by his present handicaps. Few realize this but the invalid himself.

Ways to Help an Invalid

Habit is strong. It is easier to continue our pampering and restricting the invalid than to change. Yet is there not something that we can do to ameliorate existing conditions? While the invalid himself must usually take the lead, yet we can materially assist him to diminish the restrictions that bound his position and to widen his circle of activities.

First, let us ignore his disability as much as possible. Let us as far as is practical treat him as we do the rest of the family. Need we ask him every time we meet him how he is that day? He may belong to that great company "who never die and never get well." His progression may be so slight from day to day as to be almost imperceptible, and so he has nothing to report; or, on the other hand, it may be so rapid as to be a distasteful subject, and he prefers to ignore it. Why thrust it in his teeth every time we greet him?

Second, let us begin to realize and appreciate the fact that the invalid has a work to do for us. Those long hours filled with meditation yield much good fruit if we would but give them a chance to share it with us. But how often when we go to visit the invalid we have so much to tell that we forget that he too may have a message. And because lessons of the heart, learned in solitude, do not find ready utterance to the casual or hurried visitor, we think only of the good we may do the invalid by our call, forgetting that we may carry away some precious freight.

Those who must stand apart or travel at a slower pace have time for observation. How happy they would be to share their lovely visions! Those who have received the balm of Gilead for their own wounds would gladly touch our sorrows with their healing ointment. This ministry would help to compensate the invalid for many losses he feels in other things.

Third, let us widen the invalid's mental and physical activities. His disability will provide plenty of limits, and we can often dispense with our fears that he will injure himself. Many prefer happiness and activity to mere longevity. Surely we need not be too ready to intrude our judgment or preferences.

We need to revise some of our opinions on the frailty of invalids. A doctor in India once said that she used to consider a baby to be a most delicate thing, but when she saw all that the babies of India endured and still lived, she came to the conclusion that the human child is the toughest thing in the world.

Isn't it true that invalids must possess a very strong vitality to stand all they do and still keep living? An elderly woman said to me one time, "I sometimes wonder if the way I have had to drudge along—never robust, always frail, for years bedfast, but always as active as my strength would permit—hasn't really made me live longer. I look over my girlhood friends, most of them much stronger than I, but many of them now laid to rest, and I still keep trudging on."

Invalid Must Take Middle Course

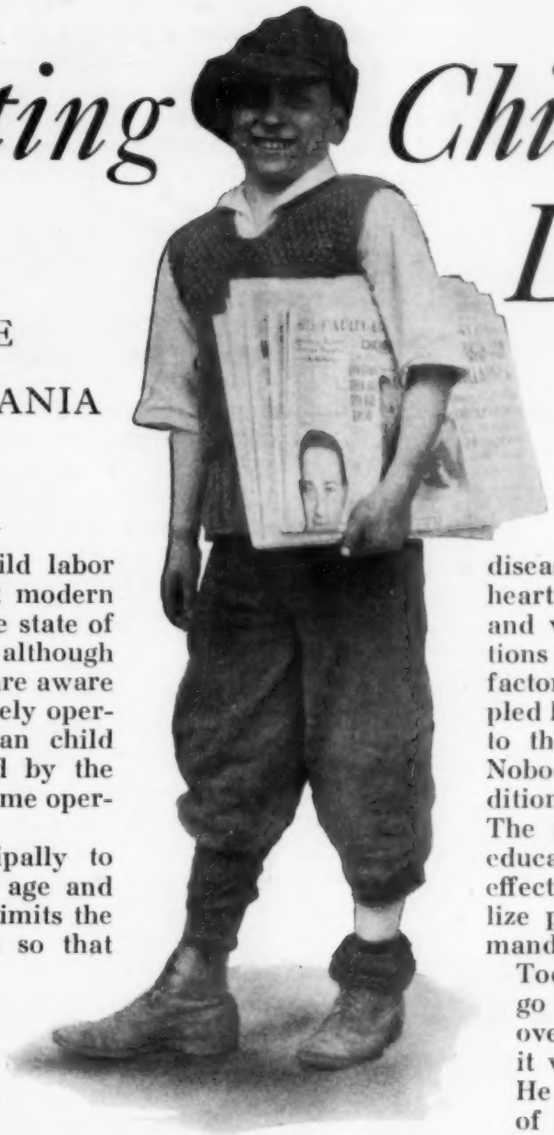
Fourth, we need to change our concepts of the purpose of life and the inevitability of death. Death awaits the strong as well as the weak. Then why not take the energy so often used frantically to stay the hand of death and help the invalid produce some worthy work to leave behind? An early Greek philosopher observed that the doctors in his day seemed to prolong diseases instead of curing them; and as many of our present-day remedies still do the same, our only hope of not becoming a nation of invalids and caretakers is for the invalids to find that beautiful mean between recklessness in endeavor and indolent submission to their handicaps. Thus they will be led to become as nearly self-sustaining as possible, their happiness and self-respect will be increased, and perhaps some work achieved that will compensate for the care they have received. At least we don't know what can be done until we try.

An indomitable will and hope have surmounted many obstacles. If the invalid tries and loses, nothing is gone but a few days of pain; and if he wins, what cannot life be? Whether he wins or loses, at least he has fought. There are many things worse than a losing fight, and one is to admit defeat while life lasts.

Protecting Child Laborers

HOW IT IS DONE IN PENNSYLVANIA

By L. M. Smith



United Charities of Chicago

Pennsylvania safeguards this boy's well-being by a humanitarian law.

UNRESTRICTED child labor is a crime against modern civilization. In the state of Pennsylvania, although comparatively few people are aware of the fact, there is effectively operating a great humanitarian child labor law. It was passed by the legislature in 1915 and became operative on Jan. 1, 1916.

The law applies principally to children over 14 years of age and under 16 years of age. It limits the hours of labor of minors so that their physical well-being may be safeguarded. It prohibits the working of minors at occupations that would be harmful to their moral or physical being. It provides an effective system of issuing employment certificates. It has established continuation schools for workers between the ages of 14 and 16 years, so that they may receive the type of instruction that will increase their efficiency as workers and their intelligence as citizens. Last and most important, from my point of view as child labor physician for the Pittsburgh district, it prevents the employment of minors who are not physically fit to work.

In short, this child labor law makes certain that the mental and physical welfare of a minor for the present or for the future is not jeopardized for the benefit of parent or employer.

This law is supported by all classes. Great corporations, factories and department stores universally obey the law and believe in it. Labor unions, political bodies and religious organizations all favor it and help enforce it.

In former days, before the prevention of child labor became effective, children suffering from diseases such as tuberculosis, heart disease, defective vision and various other serious conditions went into the coal mines, factories and mills, became crippled by machines or died martyrs to the public's shortsightedness. Nobody could be blamed for conditions as they were at that time. The public was not sufficiently educated as to the disastrous effects of child labor to crystallize public sentiment into a demand for a child labor law.

Today, if a child wishes to go to work, he or she must be over 14 years of age and prove it with documentary evidence. He must have a signed promise of employment specifying the kind of employment and number of hours he will be required to work. He must have a statement from the school he last attended certifying that he has completed the sixth grade. He must undergo a thorough physical examination by the child labor examining physician. In Pittsburgh this law is administered by the department of compulsory attendance and the department of hygiene of the board of public education.

This examination includes weighing and measuring to determine the degree of nutrition. The usual required weight is 83 pounds for 14 year olds and 88 pounds for 15 year olds. Children below these weights are considered to be suffering from malnutrition and care is taken to determine the cause. The ear, nose and throat are examined for defective hearing or tonsil and adenoid disease. The mouth is explored for defects of the teeth, pyorrhea or abscesses. The heart is examined for disease or valve lesions, the lungs for tuberculosis, the

nervous system for St. Vitus' dance or other disorders, the thyroid gland for goiter and other ductless glands for conditions that may cause a disturbance of metabolism.

Examination is made for defects of carriage, such as spinal curvature, for hernia, skin disease, epilepsy and kidney disease. The loss of an eye, an arm, a leg or other crippling defect has great bearing on whether or not a child should work and the kind of work he should be permitted to perform.

Physician Decides Child's Fate

The examining physician must know the kind of employment the child wishes to follow and has five options for use in disposing of an applicant:

1. He may pass the applicant as physically qualified.
2. He may pass the applicant as physically qualified provided the work is not about power-driven machinery. This option is used for cripples or for children wearing glasses.
3. He may permanently disqualify the applicant in cases of serious diseases of the heart, lungs and kidneys.
4. He may disqualify the applicant until certain abnormalities are corrected. This is the option most used, as approximately 98 per cent of all defects found at this time of life can be corrected.

National Child Labor Committee

Too little sleep, too little food and too little play brought the woebegone look to these great hollow eyes.

5. The child may be granted a certificate for a limited time of employment, say a month or six months, according to the judgment of the examiner.

Between the years 1920 and 1927 in excess of 43,000 physical examinations and reexaminations of applicants were made for employment certificates. This is an average of more than 6,000 a year. In 43,000 liberal examinations, it was found that 4,000 children required glasses before they could work under the law. There were 200 with serious heart diseases, supposed by the public to be quite rare among children. There were 64 active cases of pulmonary tuberculosis. There were 1,183 cases of badly diseased tonsils and adenoid growth, 168 with pronounced deafness. There were 1,272 suffering from malnutrition, 4,022 with two or more defective teeth or mouth diseases such as abscesses or pyorrhea. There were 33 with exophthalmic goiter, 163 with some nervous disorder, principally chorea (St. Vitus' dance).

Corrective Operations by Hundreds

One can imagine what became of such children prior to passage of the law and can also surmise what is taking place among working children in states that do not as yet have a child labor law. Hundreds of corrective operations were performed and thousands of children were treated by their family physicians or, in cases of necessity, free of charge in the various hospitals and free dispensaries. The law is not permitted to become a hardship on the poor, as all public hospitals receive state aid and when it is necessary children are able to obtain treatment for any abnormality free of charge.

Because of the compulsory feature of the law and the follow-up system of refused applicants, corrections of all abnormalities for the period of seven years averages 50 per cent. This average is increasing, as the percentage of corrections is much greater in the latter part than in the former part of the period.

For the seven year period the following figures show the end-results obtained by the examining physician, exercising his options in disposing of the applicants:

1. Permanently refused	190
2. Temporarily refused	9,419
3. Limited in the length of time employed	1,806
4. Limited in kind of employment	5,407
5. Certificates granted unlimited	26,518

Statistics show a decided improvement in the physical standing of these young workers. In 1920, more than 33 per cent of all applicants were refused, while in 1926, 22 per cent were refused because of various abnormalities. This shows an improvement of 33⅓ per cent in the physical standing of children in the period of seven years. The improvement is brought about

by an intensive system of health education in its broadest sense, including school medical inspection, school nursing, physical training in calisthenics, swimming, athletics and health instruction.

National Child Labor Committee

Where child labor laws are not effective children like these are crippled by machinery and disease or die martyrs to the public's shortsightedness.

Insurance statistics show that there is a gradual lengthening of average life. It is also agreed that this extension of approximately fourteen years in average life during the last twenty years has come about mainly by conserving child life. There seems to be as much heart, arterial and kidney disease among the older generation as in the past, but looking far into the future I believe the present rising generation will show a marked decrease in these serious ailments of later years because of modern health education. The abscessed tooth or diseased tonsil properly cared for today directly or indirectly prevents heart or kidney trouble in the future.

It is unquestionably the prerogative and duty of the commonwealth to protect the health and welfare of children who must go to work. This is the aim and accomplishment of the child labor law.

In conclusion I wish to quote from an editorial in one of the Pittsburgh newspapers: "Conservation of child health is building a strong and healthy citizenship for the future. This is the greatest kind of patriotism."

STUDYING PREHISTORIC DENTISTRY

A STUDY of the teeth of ancient Peruvians is being made by Roy L. Moodie, Ph.D., of the University of Southern California college of Dentistry. In *The Journal* of the American Dental Association he tells of the methods and materials of his work.

In Peru the sources of material are, on the coast, the ancient cemeteries. In the highlands the investigator must go to caves, rock shelters and the infrequent burial places. Many of these have been desecrated by treasure hunters in search of the valuables buried with the dead. One burial temple alone is said to have yielded $11,000,000.

In the ruthless destruction human remains, having no monetary value, were cast aside. As a result, bones are so scattered about the excavations that even though they may be fitted together there is no assurance that they originally belonged to the same body.

The pre-Columbian Peruvians seem not to have had the slightest notion of dentistry, Dr. Moodie observes. Although they practiced a rude form of surgery, using knives of obsidian, oral surgery had not occurred to them.

Pyorrhea was prevalent, scientists have concluded from study of hundreds of skulls. Not only have they examined skulls by direct inspection, but by means of the x-ray they have examined scores of prehistoric mummies, finding an appalling lack of teeth. In fact, Dr. Moodie states that a large portion of the people appear to have been toothless before they were 40 years old, a condition not rivaled by any ancient people so far studied.

The palates of prehistoric Peruvians show evidence of modification both by diseases of the head, such as tumors, and by deformation.

Three forms of intentional deformation are described. Binding a child on a cradle board, with the back of the head against the resistant surface, produces a flattened area.

A second method is to bind flat hard surfaces on the front and back of the head, which then grows up into a wedgelike peak. Equally remarkable was the "Aymara," or cone-shaped deformation, brought about by binding the head spirally with cloth, from infancy, producing an elongated cranium.

A custom that may have a bearing on the condition of the teeth is the habit of chewing coca leaves. Dr. Moodie attributes the almost unbelievable endurance of the Peruvian Indian to the fact that the cocaine extracted from these leaves deadened sensations of fatigue and increased resistance.

By such painstaking methods of observation, comparison and deduction the daily life of the ancient people is reconstructed. Through an understanding of the homes, the food, the habits, the accidents and diseases of that far-off civilization, the paleopathologist, as Dr. Moodie styles himself, believes that he will arrive at an understanding of prehistoric dental conditions.

What SCIENCE Owes to ANIMALS

By *John A. Kolmer*

BIOLOGIC therapy refers to the prevention and treatment of infectious diseases by means of vaccines and serums. An example of the former is cowpox vaccine for the prevention of smallpox, and an example of the latter is antitoxin for the prevention and treatment of diphtheria, the whole field being designated as biologic therapy because the substances employed are products of living cells. The treatment of hemorrhage and various diseases by blood transfusion is an additional well known example of biologic therapy.

Without animal experimentation the discoveries upon which this division of therapeutic science is based could never have been made and without it biologic therapy would be so badly handicapped that it would practically cease. Animal experimentation is therefore inseparably associated with the maintenance of biologic therapy and its value in this connection is the value of biologic therapy itself in the prevention, diagnosis and treatment of disease. This refers not only to the infectious disorders of human beings but likewise to many diseases afflicting horses, cattle, dogs, sheep and other of the lower animals, for it must not be forgotten that the lower animals were early and directly benefited by a practical application of the knowledge gained from their use in research.

One of the earliest recorded instances of animal experimentation in relation to the prevention of disease was for the direct benefit of dogs, being that of Zinke, who in 1804 inoculated these animals with the saliva of rabic animals to determine whether or not it was infectious and with the hope of developing a means of prevention that was finally accomplished by Pasteur in 1880.

Blood transfusion belongs to biologic therapy and much of our knowledge of this life-saving procedure is due to animal experimentation. Most historians give credit to Christopher Wren, the later famous architect, for suggesting transfusion experiments following some intravenous injections that he had done in the Oxford laboratory. An account of Wren's experiments made with the assistance of Robert Boyle, the physicist, is found in No. 7 of the Philosophical Transactions of the Royal Society for Dec. 4, 1665. It seems certain that as early as 1660 Boyle had given a dog an intravenous injection of opium by means of a quill, and that later Wren, Lower and Boyle carried out blood transfusion experiments.

In February, 1665, Lower, who was an "expert anatomist" and assistant to Willis, transfused blood from one sheep to another, first from vein to vein and later from artery to vein, employing quills for the connections. His first

demonstrations were made at Oxford, and on May 17, 1665, before the Royal Society in London. During the same year Denis and Bayant, in France, performed similar experiments in transfusion.

Samuel Pepys on Nov. 14, 1666, recorded in his diary that "at a meeting of Greshan College, the experiment of transfusing the blood of one dog into another was made before the Society by Mr. King and Mr. Thomas Coxe upon a little mastiff and a spaniel, with very good success." On November 21 he records that "the spaniel was produced and found very well."

After Lower's public demonstration, the Society discussed the subject of priority, noting that "a Benedictine Fryer discoursed of it at M. de Monmours, ten years ago," but without further evidence to strengthen this French claim, and wisely concluding, "But whoever the Parent be, that is not so material as all that lay claim to this child should joyn together their efforts and cares to breed it up for the service and relief of human life, if it be capable of it; and this is the main thing aimed at and solicited in this Discourse."

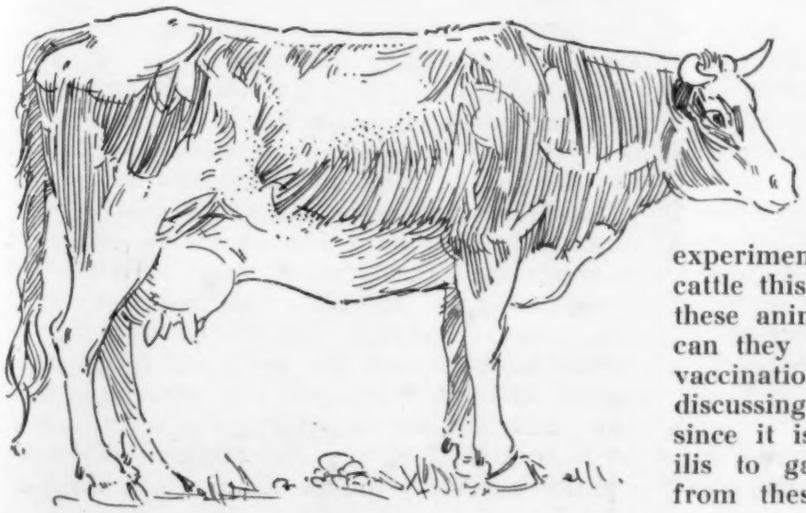
Lower, having blazed the trail by his animal experiments, followed this sound advice. With the assistance of King he performed the first transfusion of sheep blood to a human being on Nov. 23, 1667, at a meeting of the Royal Society at Arundel House, London, in the presence of "considerable and intelligent persons." A silver tube was used for connecting the carotid of the sheep with a vein in the subject's arm. The patient was one Arthur Coga, according to Pepys, a "poor and debauched man that the College had hired for twenty shillings to have some of the blood of a sheep let into his body, . . . their purpose to let in about 12 ounces, which they compute is what will be let in in a minute's time by the watch." The Society reports (Transactions, No. 30, Dec. 9, 1667) that "the man, after this operation as well as in it, found himself very well, and hath given his own Narrative under his own hand enlarging more upon the benefit he thinks he hath received by it than we think fit to own as yet."

Naturally these early attempts were crude and unsatisfactory not only because of a lack of suitable instruments and surgical skill for the prevention of coagulation of the blood during the operation but likewise because of accidents due to the fact that the blood of the lower animals is rarely compatible with human blood or suitable for transfusion. But we owe almost entirely to animal experimentation the development of the surgical technic of transfusion. In this way physicians have learned of the dangerous incompatibility of bloods, which causes intravascular agglutination and hemolysis, so largely responsible for serious accidents when the blood of the patient and that of the donor are incompatible or unsuitable.

Today we know how to select a suitable donor for transfusion and how to transfer the blood quickly and safely, but our knowledge is largely based upon experiments with dogs. No one can deny the life-saving properties of transfusion, which is now so commonplace as scarcely to attract attention. Veterinary surgeons may also profit from the knowledge of this subject and employ blood transfusion in the treatment of severe hemorrhages and some diseases of the lower animals, notably of valuable dogs and horses.

Animal experimentation placed cowpox vaccination against smallpox on its modern basis of safety and efficiency when Negri, an Italian physician, discovered in 1842 how to prepare the lymph and propagate the virus by using calves. This practice was established in France in 1864 and shortly thereafter in Belgium, Germany and England. To Dr. H. A. Martin of Boston belongs the honor of introducing the method into the United States in 1870.

Of course to the immortal Jenner belongs the honor of discovering cowpox vaccination against the loathsome and highly mortal smallpox in 1796, but it apparently did not occur to him to propagate the virus by inoculating cows for a continuous supply. Vaccination was usually performed with virus in the crusts taken from vaccinated human beings. This, however, not only offended the esthetic feelings of some but it resulted in the transmission of syphilis in rare instances. With the discovery of methods of preparing the virus by experimentally inoculating calves and adult cattle this danger was entirely removed, since these animals do not suffer with syphilis nor can they be inoculated with it. I hope antivaccinationists will not overlook this fact when discussing syphilis in relation to vaccination, since it is impossible for the germ of syphilis to gain access to the virus or lymph from these animals.



Modern methods of manufacture enable laboratories to prepare lymph that is stronger than humanized virus and is free from tetanus, erysipelas, tuberculosis, syphilis and other dangerous germs. Thus vaccination against smallpox has become one of the safest procedures known to medicine and has rid whole countries of a disease whose terrors are all but unknown to present generations. This is not the only contribution being made to human welfare by these valuable food animals, since it has been found that adult cattle may be used instead of horses for the preparation of the antitoxins and other serums for diphtheria and lockjaw.

How the Rabbit Serves the Scientist

The gentle rabbit has contributed enormously to advancements in biologic therapy, diagnosis and human welfare. In 1880 Pasteur succeeded in transmitting rabies or mad dog disease to rabbits. About the same time he worked out a method of preparing a vaccine from their spinal cords. This he used in 1885 for vaccinating dogs against the disease. These experiments were successful and in a letter Pasteur stated: "I have not yet dared to treat human beings and bites from rabid dogs; but the time is not far off, and I am much inclined to begin by myself—inoculating myself with rabies, and then arresting the consequences; for I am beginning to feel very sure of my results."

Finally on Monday, July 6, 1885, there was brought to Pasteur, a little Alsatian boy, Joseph Meister, and a man, Theodore Vone, who had been bitten by a rabic dog. The man had been bitten on the arm and Pasteur, noting that his clothes had wiped off the dog's saliva and that his shirt-sleeve was intact, reassured him and sent him back to Alsace. But the boy had been severely bitten and Pasteur, experiencing great emotion at the sight of the fourteen wounds, finally consented to try vaccination after being encouraged to do so by his friends Vulpian and Grancher. The substance chosen for the first dose was a fourteen-day cord, the injection being made two and one half days after the bites. Twelve injections were given, the final one being on July 16, with some medulla only one day old and fatal for rabbits in seven days. The following days were indeed anxious ones for Pasteur, but nothing developed and the child returned home well and happy.

On October 14 of the same year, a shepherd lad, Jupille, had been severely bitten by a rabid dog while courageously defending a group of children. Six days later Pasteur commenced the treatment, which likewise proved successful, and induced the great discoverer to establish a "service" in Paris for these inoculations.

No one can deny the great value of this application of animal experimentation to human welfare; for Pasteur vaccination has reduced the incidence of rabies among human beings bitten by rabic dogs from 16 or 20 per cent to about 0.6 per cent. This triumph is all the more striking when it is remembered that no human being developing rabies has ever been known to recover. No one seeing the disease can ever forget its terrible sufferings. It has fallen to my lot to see two persons with rabies and to endure the anguish of helplessly standing by with the realization that nothing could be done to save the unfortunate victims.

Rabic dogs never recover from the disease and during the past few years enormous strides have been made in reducing its incidence among them, and consequently among human beings, by vaccinating dogs.

The rabbit has also proved invaluable for the preparation of reagents essential for the conduct of certain laboratory diagnostic tests. I refer especially to the preparation of hemolysin employed in the conduct of the complement-fixation test (Wassermann) for syphilis, which is a widespread disease responsible for a great deal of human wreckage and suffering; also for the diagnosis of typhoid fever, tuberculosis, gonorrhea and some other infectious diseases.

But here again the lower animals are benefited by this contribution of the rabbit, because the same reagent is employed in the complement-fixation test for glanders in horses and mules, for contagious abortion of cows and mares and for dourine or trypanosomiasis of horses. The rabbit is employed for the preparation of various precipitins by which medicolegal identification of blood stains is made in murder cases and by which adulteration of meat is detected in sausages and bolognas. Indeed this animal has contributed in immeasurable degree to the welfare of human beings and the lower animals as well.

Guinea-Pig Is Indispensable

The humble little guinea-pig has proved a blessing to both human beings and the lower animals in the aid he has given biologic therapy and diagnosis. He is responsible in a way for the discovery of diphtheria antitoxin, which has saved countless thousands of lives. In 1890 von Behring discovered that animals inoculated with virulent diphtheria bacilli sometimes recovered and remained well even though the bacilli were still alive and present in the tissues. This set him to investigating and he learned that immunity came about through the development of antitoxin in the blood. This at once showed von Behring that antitoxin was the prophylactic and curative agent for diphtheria and that it could be produced in the lower animals for the benefit of human beings. The guinea-pig was too small for use in making the serum on a large scale and horses and cattle were found equally suitable, with the result that unlimited

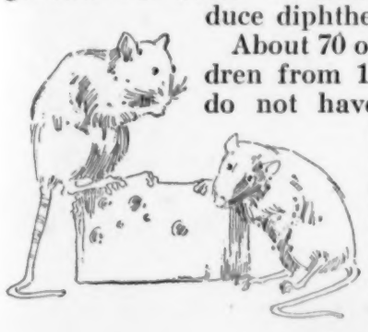
quantities of antitoxin were produced for the prevention and treatment of this scourge.

The guinea-pig is indispensable at the present time for determining the strength or curative activity of diphtheria and tetanus antitoxins expressed in terms of units. This insures against the administration of antitoxins lacking in curative power for the prevention and treatment of diphtheria and lockjaw. In addition to these two outstanding uses, the guinea-pig is employed to a lesser extent in standardizing other immune serums.

This valuable little animal is also essential for measuring the strength of diphtheria and tetanus toxins. The former is of special interest in relation to the Schick test for determining susceptibility to diphtheria. This simple and perfectly safe test is conducted by injecting into the skin an amount of sterile diphtheria toxin equivalent to one-fiftieth of the smallest amount toxic for young guinea-pigs. If the individual has antitoxin in the blood sufficient for protection against diphtheria no reaction develops; if, however, he has no antitoxin or less than is necessary for protection, a small reaction develops known as the positive Schick reaction.

This test has proved invaluable for detecting susceptible individuals requiring immediate protection against the disease and, what is even more important, for ascertaining those who are susceptible for the purpose of vaccinating them against the disease. Three weekly injections of toxin-antitoxin mixtures give adequate protection. But the test must be conducted with the correct amount of toxin and the guinea-pig must be employed to determine this amount.

Vaccination against diphtheria is accomplished by three injections of a mixture of diphtheria toxin combined with a small amount of antitoxin. It is sterile or free from the diphtheria germ itself but after injection the toxin breaks away from the antitoxin and causes the body to produce a large amount of antitoxin. The fine thing about the whole matter is that the antitoxin, which we thus make ourselves, is believed to last in our blood for many years and probably even for life, so that if the bacilli get into our noses or throats they cannot produce diphtheria.



About 70 out of every 100 children from 1 to 7 years of age do not have antitoxin in the blood, which accounts for the prevalence of diphtheria among them, but vaccination almost always produces enough antitoxin to protect them for the rest of their lives. It is a comforting thing for parents to know that a child coming home from school with sore throat cannot have this dreaded disease or does not require an injection of antitoxin alone, which protects at most for only a few weeks.

Mention has already been made of the rabbit as supplying a reagent (hemolysin) that can be used in the Wassermann and other diagnostic complement-fixation tests. The blood serum of the guinea-pig is indispensable for furnishing a second reagent called "complement" for these valuable tests. Hemolysin can be produced in the dog, goat and horse as well as in the rabbit but extensive tests with the blood of human beings, horses, sheep, calves, hogs, dogs, cats, rats and other animals have shown that only guinea-pig blood furnishes suitable complement. Human blood ranks a poor second and rat blood a poor third, all others being entirely useless and unsuitable.

The importance of the service rendered by these little animals in the laboratory diagnosis of many diseases cannot be overestimated. I need only mention syphilis, which is highly prevalent all over the world, afflicting all ages and even creeping into homes and involving innocent children. The Wassermann reaction has done more than any other single test for the detection of this disease, especially during certain stages when the diagnosis is difficult. In this triumph of modern medicine the guinea-pig has played a rôle worthy of our deepest gratitude.

Finally mention may be made of the part played by the guinea-pig in developing our knowledge of anaphylaxis, which is responsible for some important diseases of human beings and probably of the lower animals as well. Of all animals the guinea-pig and the rabbit have proved of most value in carrying out experiments essential for unraveling both the intricate mechanism involved and the means of prevention and cure.

The quiet little white mouse plays a part in developing biologic therapy for some diseases, notably pneumonia. The white mouse happens to be peculiarly susceptible to the pneumonia germ, the pneumococcus, and is useful for determining the strength or curative power of anti-pneumococcus serum and antibody solution, which have undoubtedly reduced the mortality from pneumonia. His service to mankind, however, as well as that of his big brother, the white rat, has been even more noteworthy in relation to chemotherapy.

To the noble horse we owe a great deal for the manifold blessings he has conferred on both mankind and the lower animals through serum therapy for a large number of acute and dangerous infectious diseases. By reason of his strength and size he was early selected for the manufacture of diphtheria antitoxin. But this is only one of a large number of diseases in which horse serums have proved of great value both in prophylaxis and treatment. Tetanus antitoxin, for example, when given immediately has robbed wounds of danger from lockjaw, and even after the disease has developed antitoxin in large doses has saved many lives otherwise doomed. Antigangrene serum developed during the World War is proving of value in the prevention and treatment of gangrene of wounds, especially those following amputations. Antibotulinus antitoxin is available for the prevention and treatment of a fatal form of food poisoning, and antimeningitis serum has reduced the mortality of epidemic cerebrospinal meningitis from 70 to less than 25 per cent.

Antipneumococcus serum and especially pneumococcus antibody solution made from it have reduced the mortality from pneumonia. Antistreptococcus serum has proved a life-saving agent in many cases of childbed fever, or puerperal sepsis, as well as in blood poisoning, or septicemia, caused by the streptococcus in other diseases. Scarlet fever antitoxin is of value in the prevention of this scourge and in its treatment, since the mortality has been reduced from 10 per cent to less than 1 per cent, to say nothing of reducing the incidence of running ears, mastoid disease, swollen glands and kidney disease. Erysipelas antitoxin is of value, as is antirheumatic fever serum. Anti-anthrax serum, antivenin (a snake-bite serum), antidysentery, antiplague, antigonococcus and anticholera serums, all are prepared by immunizing horses with the different disease-producing bacteria or their toxins. Diphtheria and tetanus antitoxins and some other of these serums are sometimes prepared by immunizing cattle.

Not a few of these immune serums produced by horses are of value in the prevention and treatment of their own diseases. Tetanus antitoxin, for example, is not infrequently used for the prevention of lockjaw in wounded horses and other animals. Antianthrax serum combats anthrax, especially of sheep and cattle, and an antistreptococcus serum is believed by many to possess value in the treatment of horse influenza or strangles. There are also serums for the treatment of joint-ill of colts; for the prevention and treatment of hemorrhagic septicemia of horses, cattle, hogs and sheep; for the treatment of white scours of hogs, cats, dogs and sheep; for the prevention of infectious abortion of cows, and for the prevention and treatment of rinderpest of cattle.

Even Hog Makes Contribution

Even the lowly hog has made his contribution to the prevention and treatment of one of the most generally fatal and economically important diseases of his own fellows; namely, hog cholera. Methods have been worked out by animal experimentation for producing antihog-cholera serum, which is employed by the veterinary profession with success.

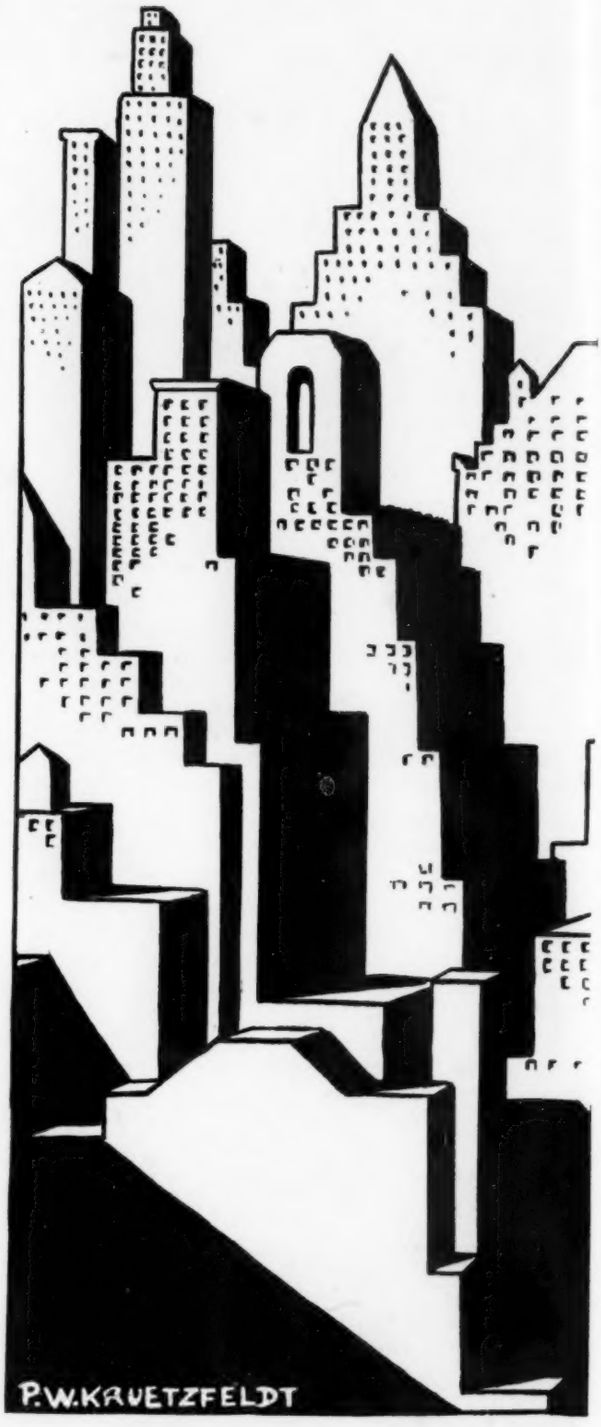
Thanks to animal experimentation, methods have been discovered for preparing aggressin, or vaccine in cattle, for vaccination against blackleg or symptomatic anthrax and hemorrhagic septicemia of the lower animals; also vaccines for the prevention of infectious abortion of cows and mares, influenza of horses and distemper of dogs, although the last mentioned has not yet been perfected for the complete protection of man's most faithful friend.

It is evident, then, that we owe to animal experimentation almost all of our fundamental knowledge of biologic therapy. Its continued use is the only means for carrying on an extremely valuable division of medicine, and the lower animals themselves have been and continue to be directly benefited by the knowledge and advances made in this important field.

Photos by Michael Greenan

Tuberculosis —and Why

By Ramsay Spillman



The pernicious habit of spitting finds its

SPITTING on the sidewalk is not an esthetic subject for an essay; it is an even less esthetic practice. What makes it deserve public discussion at all is that it has a profound detrimental effect on the health of the public. Charles Dickens paid his respects to the elegant habits of the American people in his American Notes, as any one will remember who ever read them. At that time it was the fashion to chew tobacco. One shudders to think what would happen now if there were as concerted an advertising campaign to boost chewing tobacco as there is in newspapers and magazines to promote the sale of cigarets.

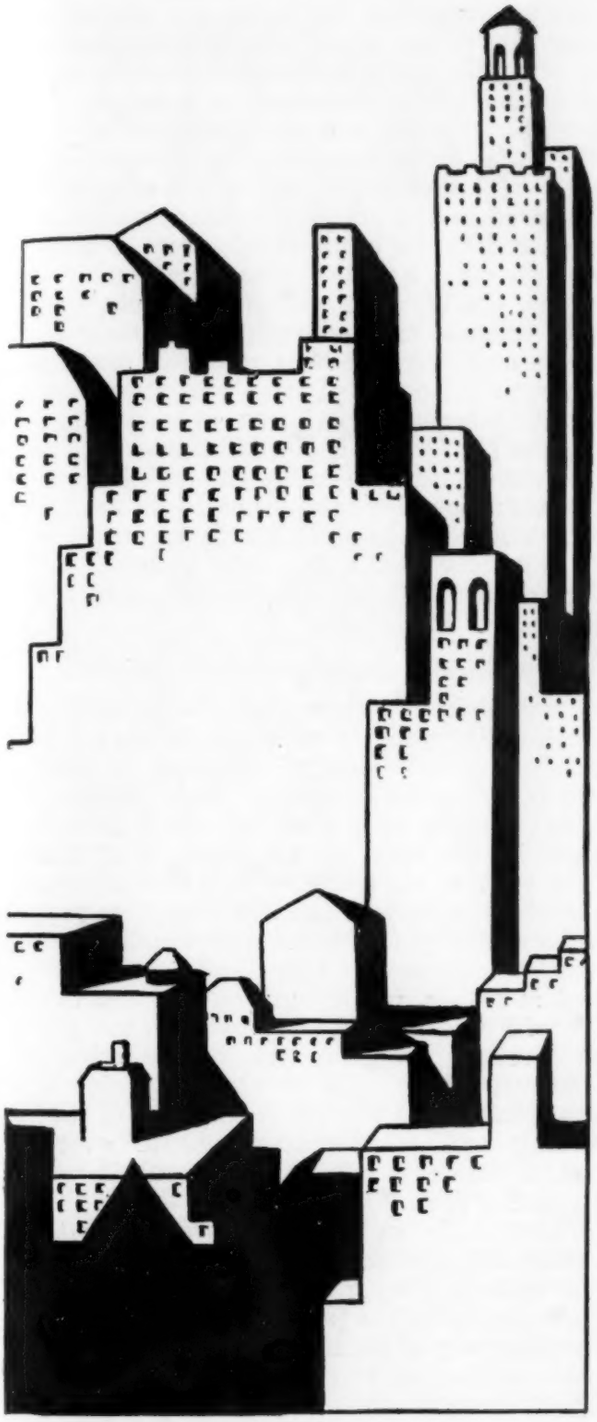
New York Leads in Filthiness

But it is not saliva as a by-product of chewing tobacco that is under discussion. The text for today is sputum: why it is so widely distributed where it should not be, the harmful effects that come from its distribution, and what, if anything, can be done about it.

Strictly speaking, sputum means material coughed up from the chest. For the purpose of this discussion, it will include also the mucopurulent material that is dislodged (and with what painful and often too audible effort) from the accessory sinuses of the nose.

Lecturing before physicians at the Trudeau School of Tuberculosis in Saranac Lake, Dr. Allen K. Krause once said: "I recently counted in two blocks in Baltimore, and not in the slum section either, the number of spots on the sidewalk where people had spit. Not every spot was fresh sputum, of course, but every spot showed where some one had spit since the last heavy rain. In one block I counted sixty spots and in the next, eighty. One tuberculous person can be a great menace by spitting on the highway, and people will spit, ordinances or not. I'm not dogmatic about any of these ideas. I am merely laying the evidence before you."

To a resident of New York, Baltimore, with only seventy spots to the block, is Spotless Town. New York, leading the world in everything, is far, far ahead in the general filthiness of the



highest development in our great cities.

habits of its people. In New York almost every taxicab one takes has fresh sputum on the floor. Practically every taxi has spots of dried sputum there. Aside from being disgusting, this has far-reaching consequences, as we shall presently see.

The tubercle bacillus is a hardy plant. One spot of tuberculous sputum on the sidewalk may contain a million tubercle bacilli. They will live for more than an hour, even when exposed to bright sunshine, and drying does not kill them. Sputum dried on handkerchiefs and blankets has been found virulent after seventy days. Now follows this sequence of events: A man walks a mile on city pavements. The law of averages demands that in the course of this walk he steps on a certain number of more or less dried spots of sputum. The law of averages also demands that a certain percentage of these contain virulent tubercle bacilli. The man goes home and wipes his shoes on the doormat; but he cannot wipe off all these tubercle bacilli, and a goodly number of them find lodgment in the rugs. His baby, creeping about on those rugs, gets living tubercle bacilli on the fingers. The fingers go into the mouth dirty and come out clean. What has become of the tubercle bacilli?

Tuberculosis and the Parable of the Sower

On this point I cannot do better than to quote from Sir William Osler: "Many years ago I drew the parallel between the infection in tuberculosis and the parable of the sower, which though now somewhat hackneyed illustrates in an effective way the importance of the nature of the ground upon which the seed falls. *'Some seeds fell by the wayside and the fowls of the air came and devoured them up.'* These are the bacilli scattered broadcast outside the body, an immense majority of which die. *'Some fell upon stony places.'* These are the bacilli that find lodgment in many of us, perhaps, with the production of a small focus, but nothing comes of it; they wither away 'because they have no root.' *'Some fell among thorns, and the thorns sprang up and choked them.'* This represents the cases of tuberculosis, latent or active, in which the seed finds the soil suitable and grows, but the conditions are not favorable, as the thorns, representing the protecting force of the body, get the better in the struggle. *'But others fell on good ground and sprang up and bare fruit an hundredfold.'* Of this fourth group were the 54,434 who died of the disease in 1909 in England—the soil suitable, the protecting forces feeble."

I lay stress on the carrying home of tubercle bacilli to the baby because intelligent parents are in the habit of making such a great effort to keep their children out of the way of infections. This shoe-borne infection is something that is beyond control at home, unless one puts down sheets over all the floors that the baby can creep on, and on the stairways, and forbids treading on them with shod feet. There would be much in favor of the practice of removing one's street shoes at the door, after the Holland fashion; but any one who made his friends do this every time they came to his house would probably promptly acquire the reputation of being queer. It would be so much better to educate people not to spit where their sputum will be tracked into the home.

The first principle of educating the tuberculous patient is to teach him not to spit in public. He deposits his sputum in a collapsible paper cup which he carries in his pocket and which is destroyed by burning. Go to Saranac Lake, where almost everybody but the natives is a carrier of tubercle bacilli, and you will never see anybody spit on the sidewalks or in the street. It simply isn't done. I would rather bring up my small daughter in Saranac Lake, if protection against tuberculosis were the only factor involved, than to bring her up in New York City. The native born children of Saranac Lake practically never develop tuberculosis, because care, that is to say, mere common decency, is used in the disposal of sputum of tuberculous patients.

The second reason for this stress on the infection of children with tuberculosis is that the great mass of evidence that research workers in tuberculosis have accumulated shows that most tuberculosis that develops in adult life is the result of infection in childhood. The infection is acquired in early childhood and in most cases lies dormant until some factor batters down the resistance. Many a latent infection is lighted up by pneumonia. A dormant infection may be aroused suddenly. On the other hand, there may be a slow and at first unrecognized development of the disease.

There is so much evidence that adult tuberculosis is due to the lighting up of a long latent infection received in childhood that some authorities have believed, at least until recently, that adult infection does not occur. It is, I believe, the consensus of the ablest opinion that the tubercle bacilli taken in during early childhood produce immunity to those taken in later. However, Dr. Arnold Minnig of Denver has recently shown that a massive infection, such as is received while nursing a consort in the last stages of tuberculosis, will produce the disease in the survivor, in 50 per cent of the cases. Dr. Minnig's figures are sufficiently important to bear repetition:

Conjugal Tuberculosis

"The incidence of conjugal tuberculosis in my previous review of 1,000 cases, was 8.7 per cent. In this review of 5,000 cases I found the incidence still greater; namely, 16.8 per cent. It is a singular coincidence that in both reviews, or in the total of 6,000 cases, I found that when one of the consorts died the mate was infected in 50 per cent of the cases. So we must conclude that, when there is a particularly massive infection, if the adult's resistance is lowered he is almost surely going to contract the disease."

Even with the best efforts directed against the spread of tuberculosis, a few tubercle bacilli (compared to the present number) would find their way into the human economy. Most children have enough natural resistance to take care of a few bacilli. But until human beings as a whole become more thoughtful of their own welfare and that of others, and quit scattering sputum promiscuously, there will always be a generous infection of children, at least in cities. To quote Dr. Krause again, "Children play ball in the street and even follow the ball down into the sewer; they play marbles and spin tops, and get their hands into contact with the street, and then put their hands into their mouths. Consider how many times a day even an adult puts his hands to his mouth."

Hope Lies in Training School Children

Every thinking person should be interested in reducing the number of tubercle bacilli that reach the child's body. Spitting is almost entirely a matter of habit. The disposal of sputum during a period of sinus infection should be the same as the disposal of tuberculous sputum—in a cup, which is later burned. It does not seem too much to hope that people can be educated to the point at which, when it becomes necessary to expectorate bronchial or nasal secretion, if they are out on the street, they will take two or three steps to the gutter and carefully drop the material alongside the curbstone, where rain or street flushing will wash it into the sewer. If this degree of understanding and consideration should ever be reached, the death rate from tuberculosis would be reduced far below its present level.

I have little optimism regarding anything calculated to change the habits of adults. I have great optimism regarding anything that can be taught to children in the lower grades of school, when they are at the most impressionable ages. A concerted effort by every public school in the United States in the direction indicated would repay in millions of dollars the slight effort it would take, if the coming generation of adults could be trained to behave as the present generation does in Saranac Lake.

The Runabout Child and his Problems

By Frank Howard Richardson

III. Weight

THE thermometer is the recognized instrument for recording and reading the height of fever in acute illness. A similar instrument has long been needed for recording the degree of health in children. It is only within recent years that doctors working with children who are apparently well, but who are yet not up to the optimum of health and strength, have recognized that in the common household or bathroom scale they have an equally valuable instrument of precision for recording that criterion of bodily welfare, the weight of the runabout child.

Scale Is Index of Child's Health

In what way is it fair to say that weight is a just criterion of the health of the runabout child? Is it true that by reading the scale, we can tell how well or how far short of being well he is? It is fair to the extent that there is a rough norm for every child, and his weight will approximate this norm if he is in the best of health. If his weight falls below this norm it will fall in direct proportion to the degree of his ill health. The scale shows the child's actual weight. In order to determine how far this weight falls short of normal, it is necessary to know what normal is.

There are two ways in which this optimum weight may be ascertained. The first is by means of the Woodbury table of weight for age and height, prepared and published by the children's bureau of the U. S. Department of Labor. By consulting this table, we are able to determine the average weight of boys or girls of any given age and height, for we have learned that average weights for age alone are a delusion in evaluating a child's condition. The other way, which is still more recent, is to disregard age entirely and use a table that takes into account height alone.

In using the Woodbury tables, which are appended here, the age of the child is found in the column running across the top of the page. The height of the child is then found in the column running down the left hand side. The figure that falls in both these columns, the horizontal and the vertical, is the average or expected weight for the youngster.

Much has been said in opposition to slavish adherence to any fixed rule for ascertaining the weight that a child should attain, without taking into consideration his racial stock, his heredity and his climatic surroundings. All these objections are valid; but if physicians waited for instruments of precision to be perfect and applicable to all individuals, they would cease to use anything at all in their medical armamentarium. Every patient differs in some way from the normal, and doctors have learned to take this into account.

It helps meet the foregoing objection if we consider that optimum weight for a given child is not a particular point but may be any point within 4 or 5 pounds from the average determined by weight and height. If we bear this in mind, we shall not do an injustice to any child studied.

What Causes Underweight?

If a child of runabout age is appreciably underweight, what can be done about it? Much can be done, but the first thing is to have a diagnosis made of the factors causing the underweight. One of the best and most effective ways to cure such underweight is to remove the cause. In many instances the cause is found to be one of the common physical defects considered in this series. In other cases underweight is the result of taking too little food or improperly selected food.

Another cause of underweight and general ill health is what, for lack of a better name, has come to be spoken of as home strain. By this term is meant the constant irritation produced by faulty discipline—too little, too much, or the wrong kind; by the jangling and wrangling common in too many homes; by unsatis-

Weight—Height—Age Table for Boys

Height (In.)	1 mo.	3 mos.	6 mos.	9 mos.	12 mos	18 mos.	24 mos.	30 mos.	36 mos.	48 mos.	60 mos.
20	8										
21	9	10									
22	10	11									
23	11	12	13								
24	12	13	14								
25	13	14	15	16							
26		15	17	17	18						
27		16	18	18	19						
28			19	19	20	20					
29			20	21	21	21					
30			22	22	22	22	22				
31				23	23	23	23	24			
32				24	24	24	25	25			
33					26	26	26	26	26		
34						27	27	27	27		
35						29	29	29	29	29	
36							30	31	31	31	
37							32	32	32	32	32
38								33	33	33	34
39								35	35	35	35
40									36	36	36
41										38	38
42										39	39
43										41	41
44											43

Weight—Height—Age Table for Girls

Height (In.)	1 mo.	3 mos.	6 mos.	9 mos.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.	48 mos.	60 mos.
20	8										
21	9	10									
22	10	11									
23	11	12	13								
24	12	13	14	14							
25	13	14	15	15							
26		15	16	17	17						
27		16	17	18	18						
28			18	19	19	19					
29			19	20	20	20					
30			21	21	21	21	21				
31				22	22	23	23	23			
32					23	24	24	24	25		
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35						29	29	29	29	29	
36							30	30	30	30	31
37							31	31	31	31	32
38								33	33	33	33
39								34	34	34	34
40									35	36	36
41										37	37
42										39	39
43										40	41
44											42

Prepared by Robert M. Woodbury, Ph.D., Children's Bureau, U. S. Department of Labor

Courtesy of the American Child Health Association

Weigh and measure children under 35 inches without clothing and children over 35 inches with shoes, coat and sweater removed.

Use these tables to interest your child in his growth. Consult your physician as to their use in determining health and nutrition.

factory conditions that are not so uncommon in the modern home as could be wished. While this cause of strain and the consequent malnutrition and underweight are not easy to cure, because the remedy calls for so much change in the adults who make up the child's world and adults are hard to change, it is folly to remove all sorts of imagined defects or to stuff a child beyond all reason, when the condition is due to a father, overzealous in punishing, to a nervous, nagging mother, or to a bullying older brother or sister.

Still another factor in underweight is the strain that comes from overtaxed endurance, such as the keeping of late hours, attendance at forms of entertainment that overstimulate the imagination (like motion pictures), attempts to learn to read or to count or to do tasks that seem simple to adults but may be hopelessly beyond the child's immature powers. The daily papers, the tabloids and the comics, all contain material far too stimulating for little minds to feed upon, either through looking at the pictures or by listening to adult comment upon the news they contain.

Those who would deal acceptably with immature minds may well take stock of just what is to be set before the children of today. For these tots of ours are going to feed on something. If we do not carefully provide intellectual and emotional food that is fit for them, they are going to gorge themselves on provender that is anything but wholesome.

In whatever measures we decide to institute to combat underweight and malnutrition in the child, it is well to remember that an appealing incentive is of paramount importance. Gaining weight in itself furnishes no appeal to the mind of the runabout child. Unless we connect such gain in weight with something inherently desirable to himself, we shall not get much cooperation, and the cooperation of the child is essential for cure.

One of the most effective means of stimulating the interest of the runabout child in his own gain consists in keeping a weight chart, on which the results of the weighings may be recorded. The curve thus plotted serves to show the child what is going on. If some reward or other recognition of his success is bestowed, the whole procedure becomes concrete and in many instances of such absorbing interest that he will eagerly cooperate in health measures.

In addition to rewarding the actual gain in weight, it is well to recognize effort that he may have made. The affixing of a blue paper seal, such as is used in keeping track of the scores in bridge games, may signalize his success in going to bed on time for a week. A red seal may mean that he has taken a nap each day after lunch, or at least has remained quiet in his bed for an hour, which is as much as can fairly be required of him. A gold star may indicate that he has gained a pound; while a silver star may show that he has gone without sweets for the same length of time.

Dental Superstitions

By W. M. Gardner

Part III

XXVII

That the gums normally bleed when the teeth are brushed.

It would be as logical to say that it is normal for the palm of the hand to bleed as to say that the gums normally bleed when the teeth are brushed. Both the gums and the palm of the hand are covered by epithelial tissue which protects the softer vascular and more delicate underlying structures. The thickness of this tissue varies in direct proportion to the amount of protection from mechanical injury it is called on to give. When the hand is used to do hard work nature forms a thick layer of epithelial tissue to protect it. The hand is then said to be calloused. The epithelial tissue of the gums reacts in the same way. Vigorous chewing of coarse foods or artificial stimulation with a toothbrush will form a thick layer of tissue, which will protect the softer underlying structure from mechanical injury or bacterial invasion. Bleeding gum tissue is a danger signal.

XXVIII

That gums bleed because they are brushed too hard or because the brush is too stiff.

Gums that are healthy can be brushed vigorously with a stiff toothbrush without causing bleeding. When bleeding does occur a dentist should be seen for corrective treatment. The vigorous use of a small stiff brush should be continued. Its correct and persistent use will not only help to bring a cessation of bleeding but will prevent its recurrence.

XXIX

That the health of the mouth depends on the type of tooth paste used.

The only function of a dentifrice is to aid in the mechanical cleansing of the teeth without injury to them. Even as a cleansing agent it depends entirely on the efficiency of the toothbrush that applies it. Of itself it has no chemical or magic powers to clean or to maintain health. The antiseptics and drugs incorporated in many of the widely advertised dentifrices are valueless, neither curing nor preventing disease. Dentifrices then really play a negligible part in keeping a mouth healthy.

XXX

That one toothbrush is as good as another.

Toothbrushes vary greatly in shape, size and construction. A small toothbrush with a 1 inch brushing surface is far superior to one with a 1½ inch brushing surface. The bristles should be hard, and the groups of bristles wide apart to facilitate drying and cleansing. The brushing surface should be a straight line with the shorter bristles at the tip of the brush. The elongated tuft found at the end of some brushes is a distinct handicap and should not be used.

XXXI

That decayed teeth, especially along the gum line, are due to an acid condition of the stomach.

The only acid that has anything to do with decay of teeth is the lactic acid that is formed by the action of acid-producing bacteria on carbohydrates, such as sugar and starches, in the white soft deposit usually found at the necks and between the teeth; also in the pits and fissures of the grinding surface. This acid reaches a high concentration and because of inefficient methods of brushing is kept in contact with the enamel surface for a time long enough to dissolve the enamel with which it is held in contact. Acidity of the stomach, or even a general mild acidity of the mouth, has no bearing on tooth decay.

XXXII

That chewing gum cleans and whitens teeth.

Teeth are cleaned by the detergent action of coarse foods or by the friction of a toothbrush with a mild abrasive. Quite obviously, chewing gum can in no way clean and whiten teeth.

XXXIII

That pyorrhea is caused by a germ.

Though many factors play a part in the production of pyorrhea, the principal factors are persistent mechanical irritants and lack of proper function of the teeth. Only after a lesion has been produced in this way do bacteria become a factor. They are therefore only secondary factors in the disease. For many years researches have been conducted to find a spe-

cific organism which, if injected into healthy gum tissue, would cause pyorrhea. All attempts have been unsuccessful. The bacteria always present in every mouth of themselves have no more power to produce disease in the healthy mouth than the bacteria in the palm of the hand. Only when a break occurs in the protecting epithelial tissue of the gums as a result of some persistent irritant can these bacteria do harm.

XXXIV

That antiseptics and germicides in the form of mouthwashes can prevent or cure pyorrhea.

The curative power of mouthwashes, which has been impressed on the public by millions of dollars' worth of advertising, has no basis in fact. In the chronic case of pyorrhea, they are ineffective, neither checking nor curing the disease. Some of them no doubt are great germ killers, but germs are only secondary factors in the disease. The problem of maintaining or reestablishing health in the mouth is mechanical, not chemical or bacterial. The only function a mouthwash can have is the elimination, by vigorous rinsing, of food particles and débris that have been loosened by the toothbrush. Warm water or a weak salt solution will do this as effectively as any of the high priced concoctions on the market.

XXXV

That pyorrhea cannot be cured.

The problem in successful pyorrhea treatment is primarily the removal of all things that irritate gum tissue (such as tartar deposits and faulty dentistry); the bringing about of an active blood exchange in the gums by means of a toothbrush, and the restoration of proper function. In its early stages the disease is easily cured. When much of the bone tissue supporting the teeth has been destroyed, however, the cure becomes more difficult and questionable. The bone tissue that has been destroyed can never be regenerated. The destruction of bone, however, can be checked if too much has not been destroyed. The overlying soft tissue (gum) can be made healthy. Patient and dentist must then cooperate so that there will be no recurrence.

XXXVI

That bad breath can be corrected by means of mouthwashes or mint flavored lozenges.

The first problem in the correction of bad breath is to find the cause. While it is usually due to an unclean and diseased condition of the mouth, it may also be due to an unhealthy condition of the nose, sinuses, throat or various points along the alimentary tract. Bad breath due to conditions in the mouth can be corrected by having the mouth put in as healthy a condition as possible, and by keeping it so by the correct, frequent and vigorous use of a toothbrush. When this is done and a bad breath still persists, a physician should be consulted. Mouthwashes and mint flavored lozenges are valueless.

XXXVII

That mouthwashes are deodorants.

Few mouthwashes are true deodorants. Most of them contain essential oils and flavoring materials that disguise an odor without removing it. It is a case of substituting one odor for another, quite analogous to the use of perfume instead of soap and water. The use of deodorants in the mouth should be discouraged. The cause of the odor should be determined and eliminated.

XXXVIII

That saliva has antiseptic properties.

If one remembers that the mouth, even in health, is a veritable hotbed of bacteria, most of which are harmless, one cannot ascribe antiseptic qualities to saliva. On the other hand, it must be conceded that it is a favorable medium for growth of bacteria.

XXXIX

That the bleaching agents on the market for whitening teeth can be safely used.

The bleaching agents for whitening teeth sold to the public are a menace. Most of them contain acids strong enough to break down the enamel of the tooth. They should under no circumstances be used.

XL

That cleaning the teeth removes the enamel.

Enamel is the hardest substance in the human body. The steel instrument or scaler used by the dentist to take off deposits on the teeth is used in a shaving manner that would make the removal of enamel impossible. In some instances, patients using a very gritty toothpaste with the back and forth method of brushing have worn away the enamel, especially at the necks of the teeth. The remedy is a less abrasive toothpaste with the correct method of brushing.

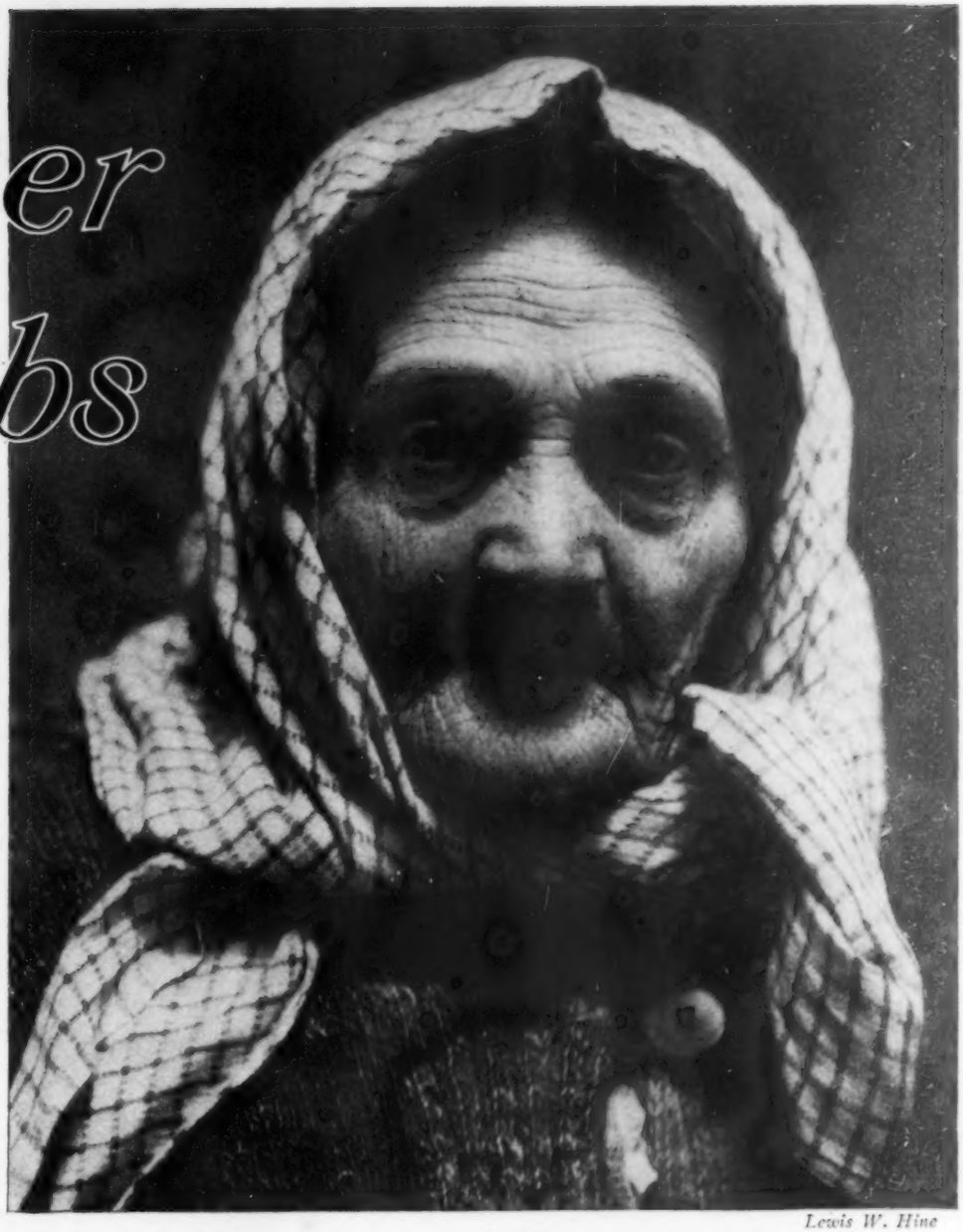
XLI

That the health of the mouth is primarily the dentist's responsibility.

Health of the mouth so far as it depends on cleanliness and vigorous stimulation of gum tissue must necessarily be the responsibility of the patient. To believe that seeing a dentist twice a year to have one's teeth cleaned will keep a mouth clean and healthy is to believe that a bath once or twice a year will keep the body clean and healthy. The health of the mouth, especially of the gum tissue, does not depend so much on visits to a dentist once or twice a year as it does on the individual's own intelligent daily efforts with the toothbrush.

Bitter Herbs

By Jay G. Sigmund



Lewis W. Hine

Granny Giltner, silent and somber, kept her secrets to herself and held an air of mystery about her methods.

GRANDMA GILTNER came out of the thicket along the railroad track and struck her rusty spade against a fence post to dislodge the yellow clay that clung to its flanks. Streams of perspiration trickled down her wrinkled old cheeks, and here and there across the back of her faded blue calico dress was a damp spot where the moisture of her shriveled old body had soaked through. Her breath came in gasps and the words that came in a low mumbling were lost.

Following at her heels came Ottie Holt, a neighbor's son, and he carried a great hickory-splint basket on his arm filled to the top with roots and black cherry bark.

"Let's sit down and rest, Granny," said the boy, but the old woman had already dropped down on the grass under a linden tree.

"Give me the basket," said Grandma Giltner between gasps.

The boy sat down beside the old woman and rubbed his bare legs with a grimy hand to relieve the nettle stings.

Grandma Giltner emptied part of the contents of the basket on the ground and began to sort them, muttering to herself as she did so.

"Here's mandrake; good for gall trouble. Here's bloodroot for my tonic. Here's golden seal; gettin' scarce; good for canker sores. Here's wild anise; good for flavorin' my cough medicine. Here's wild onion; that goes in my cough medicine, too. Here's wild cherry bark; good for consumption."

The boy gazed at the old woman in open-eyed wonder. Ever since he could remember anything, old Grandma Giltner had lived in the

tiny sheet-iron covered shanty in the edge of the little Wapsipinicon village of Ontarns, and the people of the little crossroads town and the country too, for that matter, held her in awe.

Although her reputation had grown as she became more bent and shriveled with the years, she still was as silent and somber as ever, and her little shack was seldom visited by any one. Even the patients who called the old woman, though they seldom paid her anything, usually telephoned to the grocery store that she was wanted or sent a boy in the family. They seemed to prefer that Granny keep all her secrets to herself and hold an air of mystery about her methods.

Granny and the boy who plodded with her parted at the sagging gate in front of her shanty. For a long time the old woman sat on a great granite boulder that lay in her dooryard. The basket of roots and herbs was beside her. Around the eaves of the little porch, which fringed her tiny dwelling, hung bound festoons of thoroughwort, smartweed, mullein and dried burdock root. It was late summer and Granny was ready for the autumn, for her stock of curative barks, roots and herbs was complete.

A puff of dust showed around the bend of the road and a shiny Ford car came into sight. It was driven by Dr. Wold, the young physician in Ontarns. Dr. Wold halted his car by Granny's gate and alighted.

"Mrs. Giltner, may I have some water for my radiator?" asked Dr. Wold raising his hat.

"There's the pump," growled the old woman, hardly glancing up.

"Fine weather we're having," commented Dr. Wold as he walked by her with a dripping bucket.

"Fine for milk-sickness," answered Granny in her same irritable voice.

Dr. Wold smiled a wry smile and made no reply. After filling the radiator of his car he returned the bucket to the well platform and started toward the gate.

"Thank you, Mrs. Giltner," called out Dr. Wold.

The old woman made no answer, but her eyes followed the physician as he strode down the path. Near the gate he paused to admire a clump of hollyhocks that were just reaching the height of their blooming.

"You have some lovely old flowers in your garden," said the doctor.

Granny ignored the remark and a strange light burned in her sunken old eyes. As Dr. Wold placed his hand on the latch of the gate, she arose and picked up her basket, calling out in a voice that was cracked with a queer suppressed laughter:

"Who you goin' to kill today?"

Dr. Wold tried to smile, but the attempt was a poor one. As his car moved away from the gate he muttered:

"No use trying to make friends with that old witch."

Dr. Wold had had encounters with Granny before. Once Dr. Wold had gone far back on the ridge road to see a patient and had arrived there to find Granny firmly established with the ailing man, who was well in a few days. Dr. Wold's bill was never paid and the simple farmer never lost an opportunity, when in a crowd, to tell how Granny had thrown the doctor's medicine in the hog pen and given spikenard tea instead. This story enhanced her reputation all the more.

She called in a voice that was cracked with suppressed laughter, "Who you goin' to kill today?"

Another time, after a patient far back along the river had passed the crisis in pneumonia, Granny had been called by an ignorant hired girl, and the man was dosed with great drafts of hot cherry bark tea. When the half delirious farmer was himself, he refused to let Dr. Wold see him again.

On the other hand, while Granny was given credit for many marvelous cures by the river valley people, she was never blamed for a death. The wise old woman was usually called after a physician was discharged or had made at least one visit. When she came into the sick room her first question always was:

"Has he had any medicine?"

If the patient had taken anything in the way of drugs, the old woman would ask to see them.

Then she would taste the medicine, smell it, frown and say:

"It's a wonder it didn't kill him. Throw it out. I don't know whether I can save him or not. He's too full of poison!"

Or, if no doctor had been present she would say:

"Why didn't you send for me sooner? It's got too much of a start. You haven't give me no chance. I don't know whether I can help him or not."

Granny sat in the yard for a long time. Once she drew her old clay pipe out of her apron pocket, put it in her mouth, but returned it to the apron pocket again without filling it.

Suddenly another cloud of dust appeared down the road. This time it was a man on horseback and she recognized the rider as Jake Lower, the cattle buyer.

Jake reined his horse at the gate.

"Granny," the red-faced cattle buyer called out, "they want you out to Ed Sickle's place."

"What's up?" asked Granny calmly.

"His girl's awful sick and Ed's in bed with a broken leg," replied Jake.

Granny sighed. Jake did not await an answer. He knew that Ed Sickle was in the habit of calling Granny and he knew, too, that Granny never failed to respond when word was sent to her.

It was three miles back in the hills on Big Creek to Ed Sickle's home. Granny had often been there. She remembered well when Ed's little girl had been born. Ed's wife had died, but the child lived, and the lonely, improvident Ed Sickle seemed to live only for the shy, frail girl who was now 12 years old.

Granny hobbled into her house and changed her faded dress to another, clean but equally faded. Before the little cracked mirror, which hung beneath her clock shelf, she brushed back the sparse yellowish-white hair and adjusted her old black bonnet. Her cat mewed and rubbed his black sides against her leg, but she paid no attention. In a few minutes she was plodding down the dusty road toward Big Creek, her old leather valise of herbs dangling from a strap, which crossed her bent shoulders.

Ed Sickle shouted "come in" when Granny knocked on the door of his house. Inside she found the tall, blond, farmer stretched out in one of the two ill-furnished bedrooms, and his 12 year old daughter talking in a delirium from the other room.

The littered kitchen, its table loaded with dirty dishes, egg shells and bread crusts, told how the girl had struggled against her sickness, playing the dual rôle of nurse and housekeeper while her strength waned.

The farmer tried to smile when he saw Granny enter.

"I'm up against it, Granny," he called out. "This here broke leg has got me nailed down. Gracie done the best she could, and she'd made it all right, but she took down yesterday. I couldn't get out to send no word until a neighbor dropped in this mornin'. I'm 'fraid the kid's bad off."

"I'll see," responded Granny as she removed her bonnet.

"Don't pay no attention to me. Give it all to Gracie," said Sickle in a choking voice.

The old woman cleared off the top of the rusty stove and filled an iron kettle with water from a tin pail in the sink. Then with corncobs and dry wood she started a fire.

Not until the kettle was set on the stove did she go into the bedroom.

She placed her shriveled hand on the girl's hot temples. The child tossed and muttered.

"Can you let me see your tongue, Gracie?" she said to the child in a gentle tone.

The girl's eyes stared glassily and she clutched at the folds of her torn and soiled nightgown.

Out into the blinding storm the frail old woman beat her way.

The old woman stood by the bed for a long time. Then she took her old leather satchel from a chair and dropped several handfuls of dried herbs into the kettle of water.

The house was oppressively hot. Outside the sun beat down, but was suddenly blotted out by a great inky cloud. Far away a long trembling peal of thunder sounded. The maples in the dooryard showed the silver lining of their leaves.

Granny went again to the bedroom. The girl was sitting up and staring before her and motioning with one hand, as though counting objects on the wall.

The old woman tried to get the child to lie down. She paid no heed when Granny tried to force her back on the pillow, but struggled when the old woman used more strength in an attempt to force her back.

In the other room Ed Sickle groaned from weariness and pain. Once he called Granny.

"How is she, Granny?" he asked anxiously.

"Bad, Ed," was all the old woman said.

The kettle on the stove was boiling. Granny poured some of the greenish fluid into a bowl and set it by the window to cool. Outside the sky grew blacker. The peals of thunder came nearer and the approach of night saw the storm gathering rapidly.

Granny went again to the bedroom.

The girl was sitting on the edge of the bed talking incoherently. Again Granny tried to force her to lie down. The child struggled and sobbed and finally lay back on the pillow exhausted.

The old woman retraced her steps and stirred the contents of the kettle. Then she tasted the greenish liquid from the bowl beside the window. She could hear Ed Sickle groaning again in his room.

Going into the bedroom Granny found Gracie on the floor, mumbling and picking at a knot in the pine boards. The old woman pleaded with her.

"Gracie, get back in bed. Here, Gracie, I've brought you some medicine. Here, girl, take it."

At last she got the child back on the bed. Touching her temple she found the fever raging and she could feel the girl's heart pounding as though driven by some devilish force.

Gracie now lay still, but the old woman's attempts to make her swallow the medicine were futile.

Granny went to the door. Rain was falling in torrents and a stiff wind bent the dooryard trees. It was nearly dark.

The old woman went into the farmer's room.

"How's she?" he asked anxiously.

Granny only shook her head and went again into the kitchen. Taking up the bowl of medicine she entered the girl's room again. This time she struggled fiercely in a vain attempt to force some of the bitter potion between the girl's hot, dry lips.

Outside, the storm gave no promise of abating. Lightning flashed in one yellow, jagged gash after another and the darkness had grown inky. The thunder roared continuously.

The old woman seated herself near the door and rested her head in her hands. For a long time she sat silently. Between the peals of thunder she could hear Gracie's delirious babbling.

At last Granny arose and lit a kerosene lamp. The girl was quiet for a moment. The old woman tiptoed into her room and saw the child's eyes were closed and her mouth was gaping open. Her chest was rising and falling with labored breathing. Silently Granny stole into the room with the bowl of medicine in her hand. Stealthily she moved to the bedside and dropped a little of the medicine between the girl's open jaws.

Gracie choked and spluttered and turned on her side. The few drops of greenish liquid spilled over the pillow. A peal of thunder drowned the child's screams.

Granny hurried from the room and seized her old bonnet from a nail by the door. Hurrying to the door of Sickle's room she called out:

"Ed, I'm goin' to town. There's somethin' I've got to get. I'll be back as soon as I kin!"

She heard Sickle call to her, but a peal of thunder drowned his words.

Out into the blinding storm the frail old woman beat her way. The wind had subsided somewhat, but the rain was falling in great sheets. Down the road she forced her path, her feet slipping in the hill clay, her old calico dress clinging to her bony frame.

It was more than three miles to Ontarns and most of the way the storm beat on the old woman with all its late summer fury. Many times Granny was hurled to the ground and once in sheer exhaustion she lay by the roadside for what seemed hours, but the muscles in her toothless old jaws never relaxed until she dragged her drenched form up to the gate above which hung an illuminated sign:

DR. WOLD, PHYSICIAN AND SURGEON

Sleepily Dr. Wold answered the furious rappings on his front door, and he gasped with amazement when he beheld the bedraggled Grandma Giltner at his threshold. Before he could speak, Granny said breathlessly:

"Can your new car make mud like this?"

"Of course, but come in. You're drenched. Let me get you a change of clothes. Mrs. Wold is your size. Here, sit down. You're almost exhausted."

The old woman's eyes shot out strange glints.

"There's some one three miles up on Big Creek that's lots worse off than me, and if you don't want to come, and come quick, I'm off to

Ludeville for another doctor," cried Granny in her shrill voice.

Dr. Wold hurried into his clothes as the old woman filled her pipe from the tobacco jar on his table. When he returned fully dressed, he brought a coat for her, which she allowed him to wrap about her after many protests.

On the way to the Big Creek neighborhood the doctor tried, as he fought his way from side to side of the slippery road, to learn all he could of the case upon which he had been so unceremoniously summoned, but Granny was noncommittal. All she would say was:

"I don't know. I thought it was her liver. It acts queer. Maybe you'll know, and then maybe you won't!"

When the doctor stopped at the door of Ed Sickle's farmhouse, the old woman paid no heed to his attempts to help her alight from the car but crawled out and led the way into the bedroom where Gracie Sickle lay. The girl was quieter now. The doctor made a hasty examination and muttered, apparently to himself as he turned away:

"Scarlet fever. A bad case aggravated by lack of care."

Skilfully he ministered to the sick girl. The old woman watched him with her hawklike eyes. Several times the doctor turned and asked Granny to assist him.

She held his fever thermometer; she brought him hot water. She was fascinated by the neat array of bottles in his medicine case.

When the child was attended to, the doctor went into the father's room.

The gaunt farmer was crying softly to himself spent with anxiety over his daughter.

"Never mind, Ed," said Dr. Wold, "she's pretty sick, but we'll bring her out; won't we, Mrs. Giltner?"

Granny smiled a toothless smile.

"I've never paid you, Doc, for the time you sewed up my foot when I chopped it," whimpered Sickle.

The doctor gave a reassuring sweep of the hand and silenced the worried farmer.

"Now, Ed," continued Dr. Wold, "Mrs. Giltner will stay here until morning. The girl's pretty sick, but I've fixed her up so she'll be all right that long. In the morning I'll come out and bring help. Mrs. Giltner had better not stay. It will be too stiff for her with you both in bed."

The doctor started for the door, after going back into Gracie's room.

At the door he paused to give some instructions to Granny. The storm had quieted and the moon was showing through a tattered span of cloud.

Granny followed the doctor outdoors.

"Go back, Mrs. Giltner, and dry your clothes," he coaxed.

"I want to ask you somethin'," said the old woman.

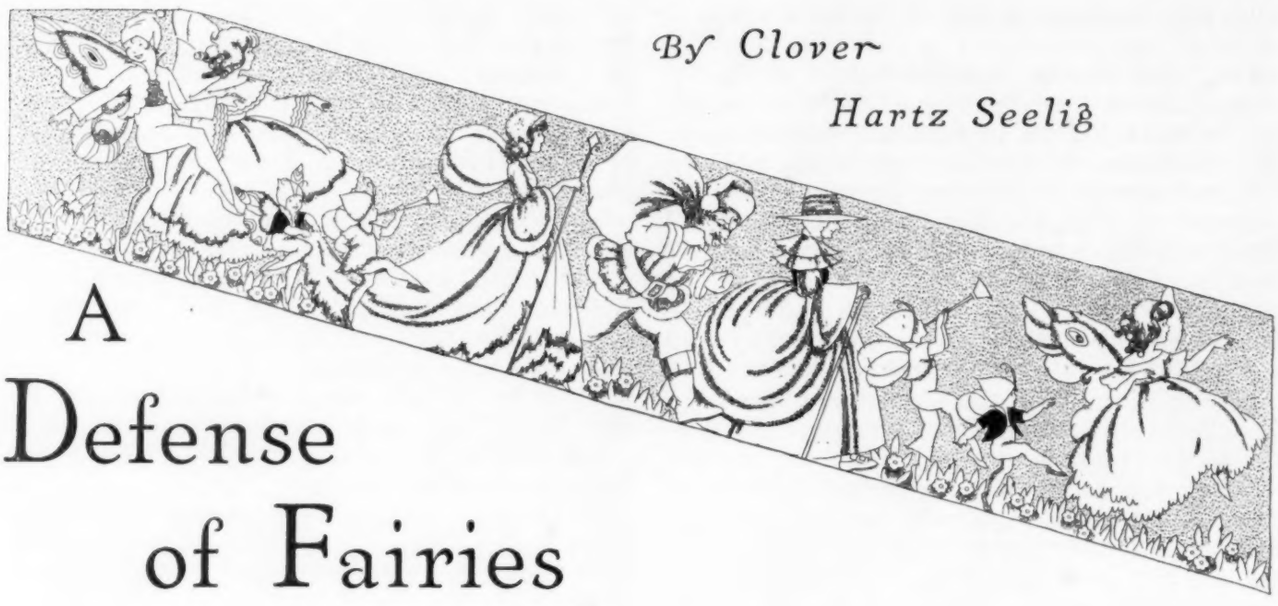
The doctor paused.

Granny hesitated and then said:

"When you come out tomorrow, will you take me back with you? And when I pack up some things will you take me over to Knowlport?"

"Of course I will, Mrs. Giltner," answered Dr. Wold goodnaturedly, "but why are you going to Knowlport?"

"My son lives there," replied Granny. "He's been wantin' me to come and live with him for a long time. I guess I'll go. He wants me, and I'm gettin' old—too old for doctorin'."



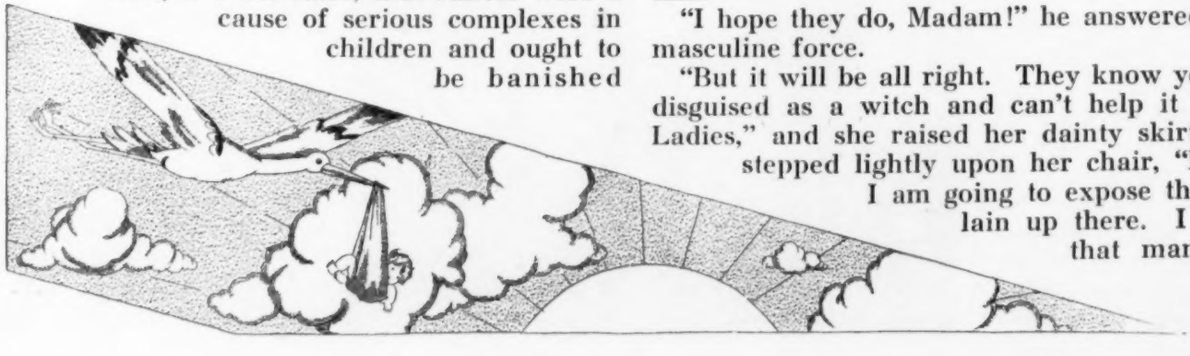
By Clover Hartz Seelig

A Defense of Fairies

SHE did not belong there. The moment I discovered her, I realized that a meeting of mothers interested in modern psychology as applied to child life was not the place for her. She looked like one of Barrie's surprising heroines, wee and canny, in her demure Parisian dress of gray cloud. I had not seen her come in, but she must have come in, because there she was in a chair, slightly removed from the other women, who hung upon the words of the speaker with flattering attention.

The speaker was a well known psychologist who had come (for a provocative honorarium) to tell them how "to prevent the problem child." He had been talking for a long time, explaining psychologic terminology, giving psychologic case histories of children and parents, and he was just starting on the psychologic treatment of the psychically sick. He recommended his own special system, which he had evolved after years of study and laboratory tests upon infants, and he guaranteed that his system would not only cure bed-wetters and flannel-lovers but prevent them.

"Oh!" I knew the exclamation had come from her, because it was so gently expressive. He could not have heard her. But when he said, a while later, that fairies were a cause of serious complexes in children and ought to be banished from the nursery, he must have caught her second "Oh!" because he turned his eloquence in her general direction.



"Yes, indeed, my dear little mother, fairies are most deleterious, especially Mother Goose, Santa Claus and Dr. Stork. Do you realize that Mother Goose teaches your babies bad grammar and bad morals? Do you realize that Mother Goose encourages rudeness, lewdness, lying, murder and bigamy?" He quoted a rhyme to prove each crime.

"And do you know that the stork lie makes thieves of introvert male children in particular? Yes, indeed. These boys are stimulated to steal watches and eviscerate them to see what makes them go. But they are not really stealing watches; they are really stealing mothers upon whom they operate in order to see where babies come from. The stork lie may develop criminals and surgeons who are commercial.

"But, my dear little mother, have you ever considered what a tragic shock it is to the sensitive soul of your little girl when she learns that Santa Claus and all the fairies are inventions, frauds, tricks to fool and blind her to the great and beautiful truths of science and sex?"

"Oh, please, if the fairies should hear you!" The dear little lady stretched her arms out to him.

"I hope they do, Madam!" he answered with masculine force.

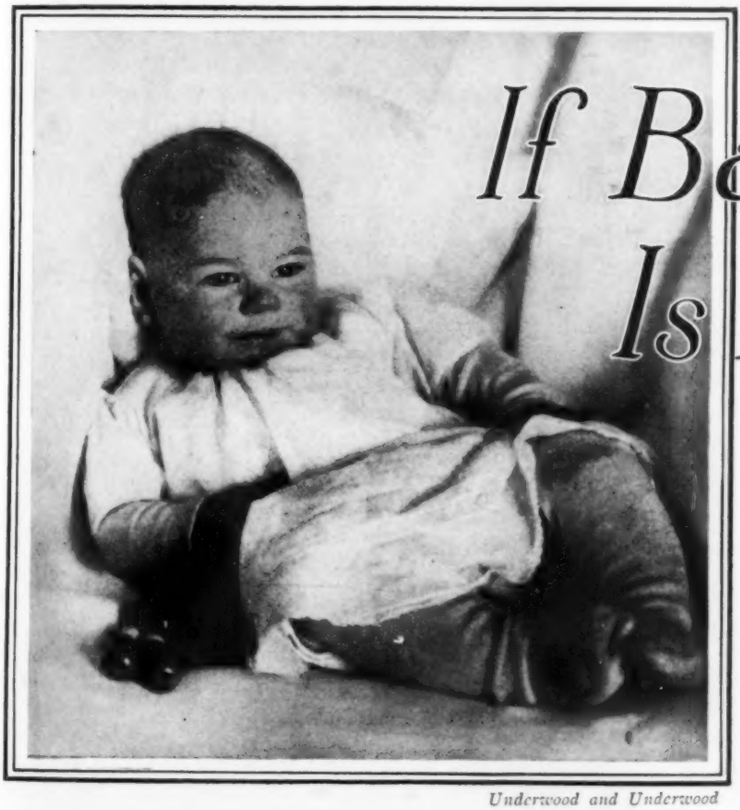
"But it will be all right. They know you are disguised as a witch and can't help it today. Ladies," and she raised her dainty skirts and stepped lightly upon her chair, "ladies, I am going to expose that villain up there. I know that man who

has been filling you full of all that dreadful science and I know that he has a lovely little girl of his own and her nursery is full of fairies. Mother Goose rules there and, so far, the dear old lady has not ruined the grammar or the morals of his little girl because she hasn't any. She has never heard the shocking words!

"Every night of her life, if she does not forget, his little girl puts a saucer out on the window ledge with a piece of sugar for Dr. Stork, as a bribe for him to bring her a baby brother. The fairies come dancing in the open window, day and night, riding sunbeams and moonbeams, bringing with them fresh air and sweet dreams.

"That terrible man up there (see, how he cringes and rages) with a little mirror hidden in his big hand catches a bit of sunshine and reflects it about his little girl's room when she is sick. He tells her it is Puck come to make her get well and she believes him. He knows that children are not shocked when they find out that there are no fairies because they always know—subconsciously—that there are no fairies although they always hope, even until they die, that there may be some. And that man tells you to banish fairies from a child's nursery! Where would he banish them? And what would he give the deserted children in return? Cod liver oil and scientific truths? Bah! Ladies, that man is my husband! And I am ashamed of him!"

Whereupon the little lady made a deep courtesy to the man on the platform, and stepping gracefully down from the chair, walked with her saucy nose in the air right out of the auditorium.



Underwood and Underwood

Don't wait until the baby is 6 months old before foot deformities are corrected. The time to act is when the child is only a few days old. Robert's foot is now normal, following early correction.

If Baby's Foot Is Abnormal

By

Arthur G. Bretz

IT IS a common belief that a child born with a twisted foot (clubfoot) or distorted limb should not be subjected to corrective treatment until he is 6 months or a year old, or even later. The reason usually given for delaying medical attention is that the child is too weak to withstand treatment and that when he is older he will be stronger and therefore have a better chance of being cured. It is most regrettable that such a notion is prevalent among intelligent people, for there is no scientific foundation to support the idea. There may be instances in which delayed treatment would be advisable, but the decision as to what course should be taken had better be left entirely to the judgment of the attending physician.

Those experienced in the growing of plants know that it is comparatively easy to straighten the twisted stem of a very young tree. Whatever corrective manipulations are necessary may be done without injury to the delicate

structures because they are sufficiently elastic to yield with the application of minimum force. It is a simple matter to hold the stem in its corrected position with the aid of a light stick and string, and the baby tree grows up like other beautiful trees. But if corrective procedure is put off until the plant is considerably older, and therefore stronger, greater manipulative force must be used in straightening the twisted stem, and consequently there is more or less injury done to the plant structures, which have become more rigid and are likely to be fractured instead of stretched. Furthermore, a heavier bracing apparatus will be required to hold the corrective position.

The same common-sense measures used in adjusting the deformities occurring in plants should be applied when treating similar ailments found in babies. The younger the child the more pliable are his bones, muscles and ligaments. As he grows older these structures become less elastic, and a greater manipulative force is necessary to mold them into the correct position, which in turn results in greater injury and the need for a heavier brace to hold them there.

Slight Deformities Not Outgrown

A slight deformity often is considered to be of such minor importance as to require no treatment, the belief being that, if let alone, the child will outgrow it. This opinion is sadly in error, and such negligence may result in permanent crippling.

Take, for example, the case of a simple turned-in foot. In the standing position the sole of the normal foot lies practically flat on the floor, thus affording proper balance. On the other hand if the foot is twisted so that only the outer edge of the sole rests on the floor, proper balance is difficult. Of course the child can be allowed to walk, in the hope that the weight of his body will make the necessary correction by stretching the muscles and ligaments of the foot; but the big drawback to this method of procedure is that a child does not, as a rule, get on his feet until he is 10 or 11 months old and even then he would have considerable difficulty in doing so with an abnormally shaped foot. Also, one should remember that the foot structures have become stronger, less yielding, and not so easily adjusted as they were when he was only a few days old.

Almost Painless, When Corrected Early

It may be true that in some instances slight deformities have been corrected by allowing Nature to take its course, but if Mother Nature had been aided in her efforts the desired results could have been obtained much earlier and with the minimum risk of failure. Why hazard a child's future success and happiness by experimenting with such uncertainties? It is a simple matter for the physician to correct the twisted little foot when the child is very young, by gentle manipulation with little or no pain. After the correction has been made, a few strips of adhesive tape supported by plain gauze or a plaster of paris bandage will be all that is needed to hold the foot in position. In some cases in which there is only a slight degree of malposition and the child is only a few days old, a single treatment is sufficient for proper adjustment. It is necessary to have the bandaging renewed and the foot inspected at regular intervals even though additional manipulations are found to be unnecessary.

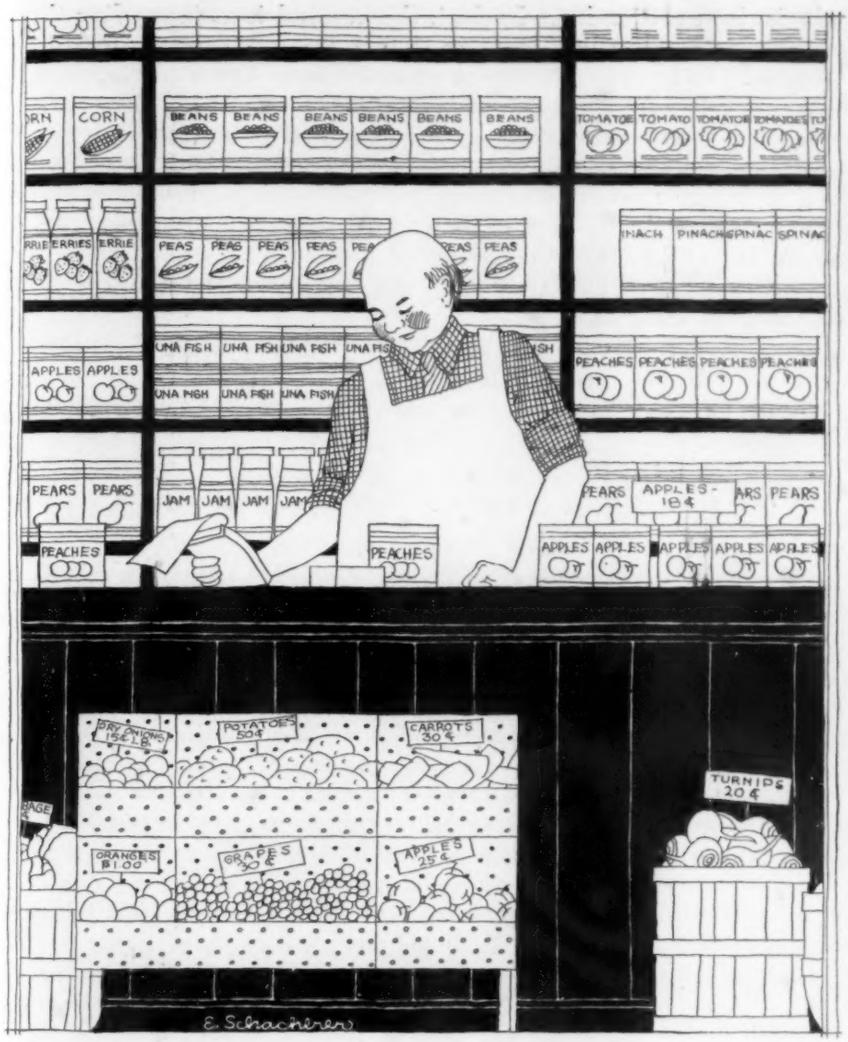
Delay Necessitates Forceful Treatment

When the deformity is more accentuated and when the corrective treatment is put off until the ligaments and muscles have become more resistant, several manipulative treatments may be necessary to overcome the malposition and a stronger support must be applied. When more than one manipulation is necessary each succeeding one requires less force; the tiny foot is gradually molded into the best position for normal development and is held in such position until proper muscle balance has been established. A prominent deformity is more than likely to receive prompt attention because of the marked deviation from the normal.

Important that Parents Cooperate

It is worth while to mention the importance of the parents' cooperation with the physician if the best results are to be obtained. Some member of the family—usually it is the mother—may become a valuable assistant by observing the condition of the bandage as well as the position of the foot. The plaster of paris bandage will soften if allowed to get wet, and therefore will be of little or no help in supporting the foot. Whatever the material used for bandaging, it must be kept clean, dry and properly adjusted. Adhesive tape is likely to slip, particularly in warm weather, and therefore fail in the purpose for which it was applied. This is apt to escape notice owing to the fact that the tape is usually covered with gauze, but by observing the position of the foot immediately after it has been bandaged by the physician and by careful daily observations thereafter, one may detect any considerable change that may have taken place in the position of the foot. Such a discovery should be reported promptly to the physician.

At stated intervals the physician will desire to examine the foot, make further correction and renew the bandage. By all means the parents should plan to keep these appointments as scheduled.



Canned Foods

By E.F. Kohman

A COMPLETE diet is a complex thing. There must be fats, starches and sugars to supply heat and muscular energy. These are obtained from our most abundant foods, and therefore our foods of lowest cost. The cereal grains play an important rôle in our diet in this connection.

It is not only necessary that there be protein, the main constituent of muscular tissue, but this protein must be of such quality that all the twenty odd components, commonly called amino-acids, that make up proteins are adequately supplied. This necessitates a liberal demand on dairy products and eggs, the proteins of which are not only well balanced in their amino-acid content but at the same time constitute a considerable portion of their total food value from the calory standpoint. Proteins are equivalent to starches and sugars in caloric value.

One Needs Wide Variety of Foods

Numerous inorganic elements, ten, fifteen, possibly more, must be supplied. These are represented in the mineral salts or ash of the foods. A certain degree of balance among some of the inorganic elements is essential. Excess calcium will inhibit retention of phosphorus, and vice versa. Therefore a reasonably wide variety of foods is desirable to create a favorable average.

Certain elements, notably phosphorus and sulphur, tend to make the diet acid. (Fruit acids do not make the diet acid.) Other elements, important among which are calcium and potassium, tend to keep the diet alkaline. The living body is always alkaline. Hence an alkaline diet is essential. Bread, cereals, meat products and eggs tend to make the diet acid. Vegetables and fruits make it alkaline. Both types of food are essential. They should be chosen in such proportion that an alkaline diet results.

Fruits and Vegetables Provide Bulk

When milk constitutes a large portion of the diet, as with children, the calcium is not always efficiently retained. As a result, milk sometimes produces an acid reaction in the body. Fruits, added to such a diet, aid the assimilation of the calcium of the milk, and thus cause the milk to produce an alkaline reaction. In addition, the fruits have an alkaline residue. This beneficial effect from a combination of foods is another illustration of the necessity for reasonable variety in diet of both children and adults.

The diet must have bulk. This is in part secured by the water in foods. In addition, and more important, there must be in the diet more or less roughage, or indigestible material, to give bulk. Vegetable fiber is of outstanding value for this purpose; hence, the value of fruits and vegetables.

The most recent discoveries regarding foods are certain substances, called vitamins, each one of which is necessary in the diet. So far, at least six separate substances, designated by the first letters of the alphabet, have been demonstrated. Each has its definite function. It is no more possible to get along without one of these than without one of the other numerous factors of diet; one of the mineral elements, for example, or one of the amino-acids that go to make up the proteins.

Nutritionists have advocated a greater consumption of vegetables and fruits, largely because of their vitamin content, their mineral salts, their alkaline residue and the bulk and roughage that they add to the diet. These are seasonal, perishable products. Industry, however, has made them available in abundance at all times. The process of canning is a pioneer among methods to conserve and supply such perishables continuously. In scrutinizing the nutritive aspect of canned foods it is necessary to consider the effect of the canning process on the nutritive components. Only the vitamins have been brought into question in this respect.

Does Cooking Destroy Vitamins?

Early work with vitamins indicated that cooking destroyed the vitamins to a considerable extent. From that it was assumed that canned foods must lose practically all their vitamin content because they are cooked at a relatively high temperature to sterilize them.

Recent work has shown that this is not the case. The loss of vitamins during cooking is really due largely to oxidation and the heat of cooking merely hastens the oxidation. In canning, this oxidation is effectively avoided, and hence commercially canned foods have been found to be richer in vitamins than home cooked foods.

Raw fruits and vegetables have been found to lose their vitamins on storage. Peas held in the pods for six days in a cool place, although still excellent in appearance, had lost some of their vitamin content. Apples held in cold storage from October to April and May—a normal period for the variety used—lost half their vitamin C. Apples canned in October from the same lot still had their original vitamin content eight months later when tested.

Canned tomatoes and canned spinach have been tested three years after canning and no evidence was found that the storage of canned foods results in any appreciable loss of vitamins. In fact, the canned tomatoes after three years were as rich in vitamins as raw tomatoes. Hence the tomatoes lost no appreciable amount of their vitamins either on canning or subsequent storage. Canned strawberries were tested sixteen months after canning and found equal to raw strawberries in vitamin content. Canned foods thus have three distinct advantages from the standpoint of their vitamins.

1. They are always canned promptly after harvesting.
2. Oxidation, which destroys the vitamins, is not permitted to operate in commercial canning as it does in open kettle cooking.
3. After canning the vitamins in canned foods are apparently stable and may be stored for long periods with insignificant loss or no loss.

Some Comparisons on Vitamin Content

For the foregoing reasons certain comparisons are possible. Canned tomatoes are richer in vitamins A and B than orange juice, and are only slightly lower in vitamin C. Canned peas are many times richer in vitamins A and B than orange juice and have about half the vitamin C content of orange juice. Spinach is among the richest sources of vitamin A with the exception of cod liver oil, richer even than butter fat, and its vitamin A content is not lowered by canning. Canned spinach has been found to be equal to orange juice in vitamin C. Orange juice, butter and cod liver oil are used in these comparisons because they have long been regarded as containing certain vitamins in abundance and are commonly used as standards for comparison.

Canned cabbage, peas, spinach, apples and peaches were shown to be several times richer in vitamin C than the same foods purchased daily on the New York market and home cooked according to the directions of home economics schools.

Canned strawberries, tested about sixteen months after canning, and canned apples and peaches, tested about eight months after canning, were found to be equivalent in vitamins to raw strawberries, apples and peaches, respectively, purchased daily off the New York markets when these fruits were in season.

Why are vitamins more effectively conserved in commercial canning than in open kettle or so-called home cooking? Canners have not revised their processes for the purpose of conserving vitamins. This is due not to a lack of interest on their part but to a lack of necessity for so doing. Not all is yet known as to the stability of each vitamin under varying conditions. It is well known, however, that oxygen acts destructively toward certain of the vitamins and that heat accelerates the effect of the oxygen. It is likewise known that if the oxygen is effectively removed, the action of the heat is practically nullified.

It has long been realized in the canning industry that oxygen in the can, even in almost unbelievably small quantities, is deleterious in several ways and in some cases leads to serious losses. A small amount of oxygen in a can of peas or corn will cause a trace of red oxide of iron (rust), which later is converted to jet black ferrous sulphide by the sulphide evolved from the food. The oxygen in apples causes them to darken in areas around the core during processing and subsequently corrodes the can. As a result, even before the vitamins were known, canners had worked out procedures that excluded oxygen from the can.

It has been pointed out that a complete diet is a complex thing. The known chemical substances without which life cannot be sustained indefinitely would total almost half a hundred. Any one food can supply only a limited number of these. Hence, a reasonable variety is absolutely necessary and a wide variety of foods throughout the year is a valuable safety measure.

A striking illustration comes to mind in the case of iodine, one of the inorganic essentials to a complete diet. Great sections of this country have virtually no iodine in the soil. Hence, it is not in the waters of such regions or in the foods, either animal or vegetable, produced in such regions. Widespread goiter is the result. In some regions more than half the population is afflicted.

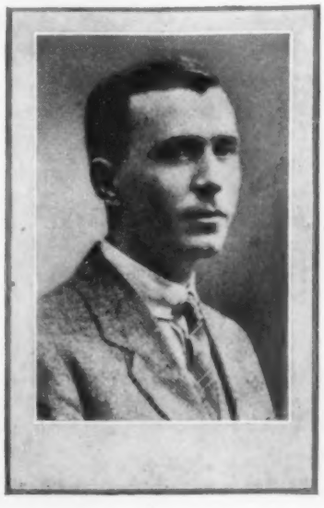
Iodine in foods is more satisfactory for this condition than the addition of iodine to water supplies or its administration in other forms. Sea foods of all kinds are outstanding in their iodine content, and there is ample evidence of their value in this respect. Practically no inland fish are canned. Therefore, canned fish products of all descriptions may be regarded as containing an unusual amount of iodine. The oils in fish products usually contain vitamins A and D.

It must be borne in mind always that a diet, even though complete in its chemical constituents, will not produce its optimum effect unless eaten with relish and enjoyment. The diet of some is governed by habit, but for the majority monotony is not conducive to the greatest pleasure in eating. Modern industry has supplied us with such abundance and variety that we are more fortunate nutritionally than ever before, both from the standpoint of having all components of a complete diet supplied as well as from the standpoint of variety.

Tuberculous Physicians *and Their Contributions*

McDUGALD McLEAN was born in Texas in 1886. After being graduated from the Southwestern University in 1910 he entered Oxford, having received one of the scholarships made possible by Cecil Rhodes, also a sufferer from tuberculosis. At Oxford his life was wonderfully enriched by the new friendships made and particularly by his contacts with Sir William Osler, the famous teacher and physician.

After receiving the degree of bachelor of science from that institution, he returned to America and took up the study of medicine at Johns Hopkins University, where he received the degree of doctor of medicine. He served one year as an intern at the Bay View Hospital before beginning his work as a general practitioner. In 1917 he went to Dallas, Texas, to begin the practice of medicine with a well established medical group, but almost immediately he fell ill with tuberculosis and went west. He never worked again except for a few months as an assistant in the New Mexico Cottage Sanatorium in Silver City. Toward the end of 1921 his condition became serious.

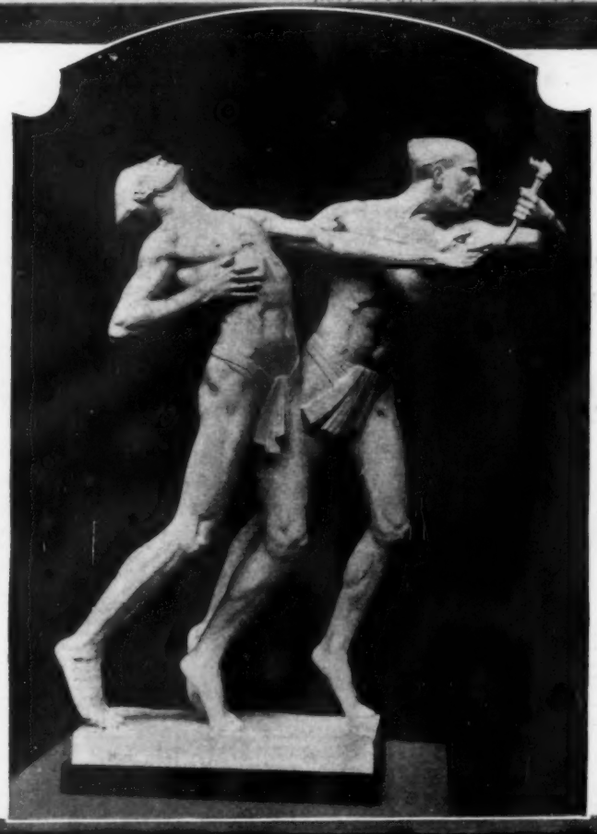


Dr. McLean had that indomitable spirit which enables those who possess it to carry on even in the face of adversity. Even though toward the end he was confined to his bed, he succeeded in finishing his book, "Tuberculosis: A Primer and Philosophy for Patient and Public." The book was published by the *Journal of the Outdoor Life* in 1922 and is already in its second edition.

Some will ask why a man with medical training should die of a curable disease so early in life. Perhaps the answer is that his humanitarian spirit carried him often beyond the limit of personal safety. He possessed such love for others that he laid down his life for his friends.

But after all was Dr. McLean's life short? Would it not be better to measure length of life from the standpoint of service to humanity rather than by length of years? If so, he lived to be old.

—J. A. MYERS.



Sport in Modern Art

Sport was the inspiration of much of the art of Greece. After 2,000 years sculptors have rediscovered the beauty of the athlete and are translating it into bronze and marble. The three panels shown on these pages are the work of R. Tait McKenzie. Jack Lambert did the football group on the opposite page. Emile Jacot originated the boxers and the relay race is the work of an English sculptor. The single figure of the athlete is by Gertrude Vanderbilt Whitney.

Photos by Underwood and Underwood

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HYGEIA
THE HEALTH MAGAZINE
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Plain Facts about Health and Disease

THE ESTHETICS OF EATING

THE esthetics of eating has not yet been developed in our rushing civilization. Every country has its peculiar dishes: the beef pie of England, the apple pie of New England, the truffle of France, the chilli con carne of Mexico, and the bird's nest of China. Food artistically prepared and appetizing causes a reflex flow of gastric juice which aids digestion.

Americans have developed the habit of eating or drinking to relieve fatigue or merely to pass the time. When a person is tired the body needs a chance to recuperate, and it is not advisable to take in quantities of food at such a time or to overstimulate the body with drinks or drugs. Rest in times of fatigue will do more for the digestion than something thrown into the stomach.

The jazz age has brought with it the "country" chicken dinner, the "wayside inne," the "tea shoppe," the chop suey "joint" and other emporiums of nutrition more likely to bring indigestion than any other result. A quiet, clean dining room, free from orchestral din and dancing, is far more conducive to good digestion than can easily be estimated. Food should not be a fetish, but meal times are for eating and a reasonable amount of attention to the food rather than to the environment ought to yield excellent results so far as the stomach and intestines are concerned.

The human being eats to provide energy for his daily work. The antidote to the desire to eat is the development of feelings of satisfaction. Those who go on eating merely because the food has been supplied in considerable amounts overtax a system that recovers but slowly from undue effort. Business men say sometimes that they suffer with "nervous stomach." There is much doubt as to the existence of such a diagnosis scientifically. The usual symptom of such a complaint is eructation of acid and the diagnosis usually made by the sufferer himself is "hyperacidity." It has been pointed out that hyperacidity is a symptom and not the disease. "When a fire bell rings the fireman does not pour water on the fire bell; he recognizes the signal and goes where there is fire." When acid eructations occur, the difficulty is not always with the acid. The nervous stomach of today is the "autointoxication" of yesterday and the "dyspepsia" of the day before that.

ANTIVIVISECTIONISTS

OF ALL the peculiar fanatics who disturb the current scene, the antivivisectionists are the strangest in their psychology, and perhaps the most persistent in their misunderstandings. Among the leaders of antivivisectionists in our fair land is Mrs. Diana Belais, president of the New York Antivivisection Society, who constantly annoys writers with diatribes on their articles and who never hesitates to exaggerate or misinterpret scientific material in support of her notions.

Fortunately, the medical profession has had in Dr. W. W. Keen, the dean emeritus of American surgeons, a watchful opponent of the irrationalities of Madame Belais. Not infrequently such misguided enthusiasts as La Dame Belais poke their fingers—in the instance of a lady one must be too polite to say nose—into situations in which the result is a burning of the prying organ.

Such was the case in the latest venture of Mrs. Belais, who thought it desirable to congratulate Elsie McCormick, witty writer in the New York *World,* on a statement which she had made relative to the general conduct of doctors, interns, nurses and hospitals. In her public reply to the letter by Mrs. Belais, Mrs. McCormick satisfactorily disposes of antivivisec-

tionists in a document that deserves far wider circulation than is afforded to it by the newspaper in which it originally appeared. This document follows:

This letter has left me with my chest heaving in astonishment. I did not know that I was taking any attitude, or that I was enrolling myself in the camp of those who want to see the Rockefeller Institute leveled by some well trained Visigoths.

As a matter of fact, the antivivisection movement is one for which I can muster very little enthusiasm. It is, I think, the most myopic of altruistic causes and the one most grievously lacking in sympathy for mankind. How any one can desire to stop responsible investigation and callously leave sufferers from cancer, tuberculosis and other problem diseases without further medical hope is something I cannot comprehend.

The propaganda of the organization assumes that a scientist who devotes his life to studying the cause and cure of disease is in the career simply because he has a fiendish fondness for the yeeps of frightened guinea-pigs. Pasteur, for instance, was so cruel that he sacrificed in his laboratory a number of mad dogs. There was no excuse for his act at all, except the highly flimsy one that he wished to find a way of preventing rabies in human beings.

These worthy crusaders usually ignore the fact that scientists who devote themselves to research make a very real sacrifice in order to serve the world. Some have even given their lives. Nearly all are men who could earn ten times as much money as fashionable specialists, but who prefer to follow a hard, ill paid career in order to push back a bit the dim frontiers of human knowledge.

There is also a disposition to overlook the fact that a vast majority of experiments on animals are conducted under full anesthesia. This would be necessary from the standpoint of technic, even if all investigators were entirely devoid of mercy. The suffering that does exist is infinitely small compared to the mountain of pain it has helped to prevent.

I remember reading in a piece of antivivisection literature a scathing denunciation of the man who would save his life at the price of suffering in animals. "What would you think," it said, "of a man who took other lives in a fight for a place in a lifeboat?" Not very much, it is true, but he deserves fully as much esteem as the person who would toss women and children out of a lifeboat in order to make room for a crate of guinea-pigs.

I have also heard a propagandist register violent objection to the fact that students in surgery acquire their technic by operating on animals. Apparently there would be no opposition if they gained this necessary practice by starting at once on human patients and perhaps doing a little bungling on the bodies of the crusader's family.

It would be possible for me to have more patience with the antivivisectionist point of view if I could be sure that all the members were interested merely in the prevention of animal pain. This is true of a number of kind-hearted and near-sighted souls, but there are others whose motives are by no means as simple.

It always seemed strange to me that these propagandists have not also launched a crusade against trapping and hunting. It is not customary to anesthetize an animal before wounding it with a bullet, and its suffering, moreover, makes no contribution at all to human knowledge. Yet there is no unusual stir on the part of the antivivisectionists when the Nimrod season opens, nor have I heard of one refusing with indignant stamps of the foot a husbandly gift of a fur coat.

A little investigation discloses the fact that antivivisectionists are generally adherents of one of the more rococo systems of healing, and that their quarrel is with the advancement of orthodox medicine rather than with the qualms of the guinea-pig. Mrs. Belais's letter seems a good illustration of this point of view, her far-flung dudgeon including even such comparatively innocent subjects as interns, nurses and hospitals.

Perhaps, however, I am doing the lady an injustice if I think her movement lacking in sympathy for people who are ill. It is possible that the antivivisection society intends itself to take care of the sick when hospitals and doctors are hustled into well earned oblivion.

Another thing which disturbs me a bit is the great wealth of detail regarding pain and torture in which a number of antivivisectionists seem to revel. I once noted some ladies in a propaganda booth who were hearing an ornate story about the scientific torture of a dog. Two or three were listening with a rapt, shining eyed interest which would have caused any psychologist to reach hastily for his case notes.

Many workers with kind hearts and no pathologic complications are wrapped too securely in the pink cotton wool of sentiment and illusion. H. G. Wells once pointed out that what the antivivisectionist most resents is usually the unimpassioned and level-eyed search for truth. The scientific attitude threatens to ruin many a pleasant cosmic fancy, and is thus viewed with umbrage by ladies who prefer their colored clouds.

I do not believe that orthodox medicine represents perfection, either in theory or practice. The usual practicing physician is by no means above making mistakes, and he sometimes assumes a cocksure attitude when the extent of his knowledge does not warrant it. But for the men who are devoting their lives to a patient study of the cause and cure of disease I have only the greatest respect, and any lady who thinks otherwise is serenading the wrong balcony.

THOSE BENIGHTED HUNGARIANS

ALTHOUGH some hundreds of thousands if not millions of years have passed since the appearance of life upon the earth, a study of the records of mankind indicates that human nature has changed but little through the passing of the ages. Recently an exhibition of methods of quackery was held in Hungary and fully described by the Budapest correspondent of the American Medical Association. The weird devices, strange combinations of herbs and drugs, spells and magical formulas used to victimize the innocent population of that far land differed but little from the products of a similar nature for which Americans contribute so lavishly from year to year.

The editor of the *Kansas City Star*, urged to reflection by the account of the Hungarian show, has sagely and succinctly epitomized the American scene:

We gather that the population of Hungary does not call in the doctor until all remedies popular in favor have first been tried. These include, as the medical association's exhibits seem to show, horse shoes, talismans of various kinds, plants, minerals and four-leaf clovers. Under the head of superstitions and popular customs having medical significance, we find listed

magic sayings, spells, incantations and bewitchings. Popular healing methods include fomentations, massage and sweating cures. The various lists exhibiting the different forms of quackery are extensive, and indicate that many of the more ancient forms still have their believers; fortune tellers, sorcerers, magicians, witches and wizards evidently continue in widespread practice.

Hungary being a long way off, and not even easily identifiable geographically since the peace treaty scramblings of old boundary lines, we accept these indications of the primitive nature of its people without surprise. Hungary is backward, of course. Its people do not know anything about the strides of medical science as they have been revealed in this enlightened country. In some parts of the South, for example, it has long been known that the proper way to abate a fever is to place a rattlesnake skin under the bed. In some of the more stubborn diseases it has been found necessary to induce a spider to build a web where the patient can see it while lying on his left side. These and similar remedies are well known even in those parts of the South where education has made the least progress.

In New England centuries of experience have demonstrated to the more receptive minds that the most certain way to guard a new baby against future ills, and also to insure it against financial difficulties, is to introduce a dime, received in change from a fish peddler, into its mouth. If the child swallows it the spell is likely to be broken, as experience seems to show that dimes in the infant stomach somehow interfere with the working of the rite. Another disadvantage of such inadvertence, peculiarly significant to New England, is that the dime is lost.

We wish the Hungarian doctors luck in their present endeavors, but refrain from encouraging them too much. It took us a long while to get where we are. . . .

The old reflection of P. T. Barnum as to the birth rate of the "saps" is as sound as ever, except that the rapidity of modern life may have increased the proportions. Peculiarly enough, the most strenuous adherents of current follies are not infrequently those self-sufficient, self-made men or social leaders whose preeminence in some single activity convinces them of their ability to judge for themselves in every field of human knowledge.

POISONING FROM ENAMELED PAILS

LAST July in the city of Newcastle-on-Tyne, England, about seventy persons were sharply attacked with symptoms of poisoning after drinking some lemonade. In order to mitigate the discomforts of the unusually hot weather a mercantile firm ordered a large quantity of lemonade to be prepared for its employees. The concoction prepared was not strictly a lemonade but was compounded of water, sugar and a quantity of the Castle brand of fruit crystals, which are composed of tartaric (not citric) acid (amounting to 76.2 grains per pint of the drink), sugar, saffron yellow and solid lemon cream flavor.

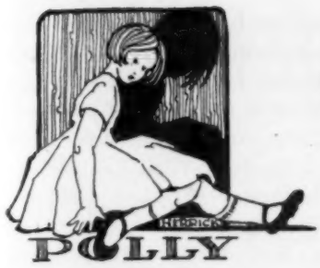
The beverage was prepared in two and one-half gallon buckets enameled white within and without and fitted with an enameled lid. An additional quantity was placed in a fifteen gallon tub. Ice was added to cool the drink and the buckets were placed in convenient places early Saturday morning.

Apparently the employees began to drink the beverage at about 10:45 a. m. and about 70 of the 500 employees drank of it. The majority speedily became sick and fifty-six were sent to the Royal Victoria Infirmary. The severity of the symptoms was proportionate to the amount of the drink imbibed by each person. Most of the patients returned to work within three hours, and some were able to eat dinner within that time. Two remained at the hospital over night. No serious after-effects were reported in any persons affected.

Careful inquiry into the ingredients of the drink resulted in the exoneration of all of them but not so with the containers. The enameled surface of the pails in which the "lemonade" had stood for some time had been attacked by the tartaric acid and in the case of one bucket so completely destroyed that it could be brushed off with the fingers, leaving the bare metal, galvanized iron. Analysis of the enamel revealed antimony oxide, a usual constituent. Antimony was much used as a drug in earlier days in the form of tartar emetic and causes vomiting. The paint covering the inside of the tub was made of zinc oxide and linseed oil and was not attacked by the acid drink.

It should be said that the pails newly purchased for this use were not designed to be used for food. However, an analysis of several enamels of utensils manufactured for cooking showed some of them to contain antimony. Some of these are highly resistant to the acids usually found in beverages and foods, but others are not.

Foods and drinks containing acids should be placed only in vessels of glass, porcelain or other ware or in wooden vessels. Enameled pails or other containers designed for use only as buckets, wash basins or similar uses should not be employed to contain beverages or acid foods.



The Naughty Little OAK TREE

By

Jennie MacMaster

IT WAS autumn. Only a short time ago Jack Frost had painted the trees a wild riot of reds and yellows and browns. On the south side of the house where Bub and Polly Carter lived, a great spreading oak stretched out till it almost touched a little young oak, not more than four years old.

Now sometimes trees misbehavé as children do. Even the best children are naughty sometimes, and so it is with trees. This little oak tree's naughtiness was all on account of Jack Frost's visit. She was so young that she had forgotten about Jack's coming the year before, so she had also forgotten about the beautiful color he had painted her leaves. And now this year, she thought them the prettiest she had ever seen. So that was where the trouble began.

"No," she cried, saucily waving her branches, "no sir-e-e, I won't shed my leaves! I just won't, so there now! I'm going to keep this dress on for always. It is the prettiest one I've ever had and I won't shake it off."

"Oh yes, my dear, but you must." It was the spreading oak talking, quietly and smoothly and not in the least disturbed. "All trees, except evergreens, shed their leaves in the fall soon after Jack Frost's visit. I don't know because I've never tried it, but I think it would be horribly uncomfortable to sleep with them on."

"Sleep!" snorted the bad little oak; "who wants to sleep? Why, this is the prettiest time of the year, and I'm going to look and look. I'm going to keep this pretty dress on too; and I'll stay awake all winter, so there!"

"No, Little Oak, you wouldn't want to do that. Your dress won't stay as bright as it is now, it will turn brown—a dry, ugly brown—and all the trees around us will shed their leaves and go to sleep. You would be here all alone, in an ugly brown dress; and there would be nobody who could understand you when you talked—even the grass will be asleep."

"But why can't we stay as we are now? Why do we have to go to sleep?"

"Dearie me," the spreading oak tried to reach over and pat the little oak, "everybody and everything has to go to sleep sometime. It is the same with little trees as it is with little children—the ones who sleep when they should grow to be the strongest. Children go to sleep every night, and the ones who go early and don't fuss about it have the brightest eyes and the prettiest color. You'll be prettier next spring if you sleep now. See if you are not."

"But children don't sleep all winter. There is lots of difference between one little night and a whole long winter!"

"Yes, to be sure there is," the spreading oak agreed,

She huddled herself in as tight a bunch as she could and hid behind the spreading oak.

"but we stay awake all summer and sleep all winter, while children stay awake only in the day time and sleep at night. But everything has to have regular periods of rest. Children who do not get as much sleep as they should are pale and listless; trees that do not get as much rest as they should—"

The spreading oak stopped and looked around in a dazed sort of way. "But what am I saying? I never heard of a tree that didn't want to go to sleep for the winter. I never heard of such a thing! You must have got that notion from hearing Bub Carter fuss about going to bed."

"No, I didn't, I didn't either!" The little oak was almost crying. "But the world is so pretty I want to watch it. Besides I can't shake these pretty leaves to the ground—I just can't—and I don't want to go to sleep anyhow—and I'm not—"

But the little oak did not finish, at least not out loud; and like lots of children she did not realize that it was because she was even then getting sleepy that she was so cross to the spreading oak.

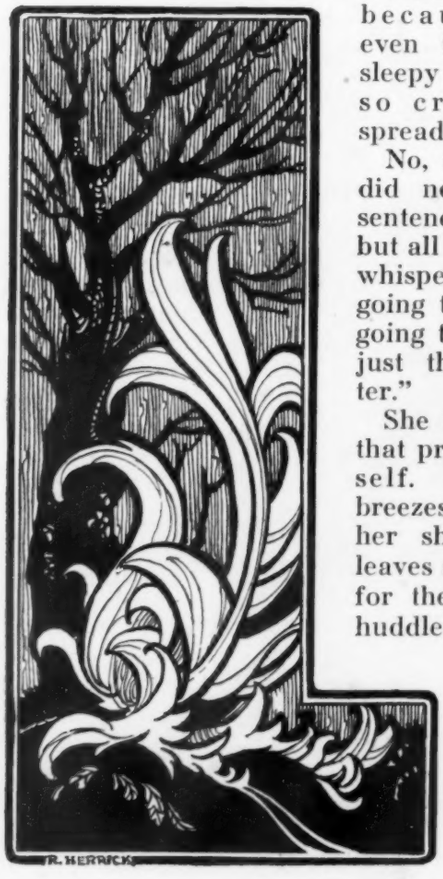
No, the little oak did not finish her sentence out loud, but all to herself she whispered, "I'm not going to sleep! I'm going to stay awake just this one winter."

She tried to keep that promise to herself. When the breezes blew to help her shake off her leaves and get ready for the winter, she huddled herself in as tight a bunch as she could and hid behind the spreading oak. How she did laugh to herself when she looked around and saw how well she was succeeding. While the leaves from the spreading oak and all of the other trees lay scattered on the ground or blew hither and yon in every little breeze, hers were still tight on her branches.

Then, one day, the little oak watched Bub Carter rake all of the fallen leaves into huge piles, load them into a wheelbarrow and trundle them around to a field behind the house. That evening she nearly smothered in a terrible smoke and, looking around to see where it came from, she found the whole huge pile of leaves on fire. Then she was sad. She looked from that smoking heap to the dear old spreading oak, but when she murmured, "Oh dear, dear Spreading Oak, I'm so sorry," she received no answer at all. She called again and again, and each time she called louder; but the spreading oak did not hear; she was now fast asleep.

The little oak did not like that much, but she whispered, "I don't care, I'm not going to sleep; and I won't shake off my pretty leaves." But when she looked down at herself, she wrapped her branches close and began to cry—her yellows had all faded and her reds were turning brown.

The little oak cried most of that night, and the more she cried the sleepier she grew. That was only the beginning of her trouble. Every day



The whole huge pile of leaves was on fire.

"Oh-h-h," she yawned, "I'm so-o sleepy!"

she was more alone, every day some tree or shrub failed to answer when she called. What hurt her even more, the beautiful red color faded and faded till her leaves were all a dead, ugly brown. The little oak grew sleepier and sleepier, but the wind shook her just enough to keep her awake.

Then one day, when she was half asleep and half awake, and oh, so anxious really to go to sleep, the little oak noticed that the spreading oak and the other trees did not shake as much in the wind as she did, and she began to wonder why. Though she was sick for sleep, the wind shook her just enough awake to keep her thinking about this. Finally one day she started almost awake. "I know," she whispered, "it is my leaves—they make me rock and keep me from going sound to sleep."

Through heavy eyes she looked down at them, and shuddered at their ugliness. "Oh-h," she whispered, "the dear spreading oak was right. Why didn't I listen? Oh-h, wel-l-l," she sighed, "I'll shake them off now, and go to sleep. Oh-h-h-h," she yawned, "I'm so-o slee-eepy!"

But when she tried to shake her leaves off, she found that she no longer had strength enough to do so. She tried and tried, and cried and cried; but she was so tired and sleepy that she could not put enough force into it. "Oh dear Spreading Oak," she cried, "dear Spreading Oak, please help me—tell me what to do?"

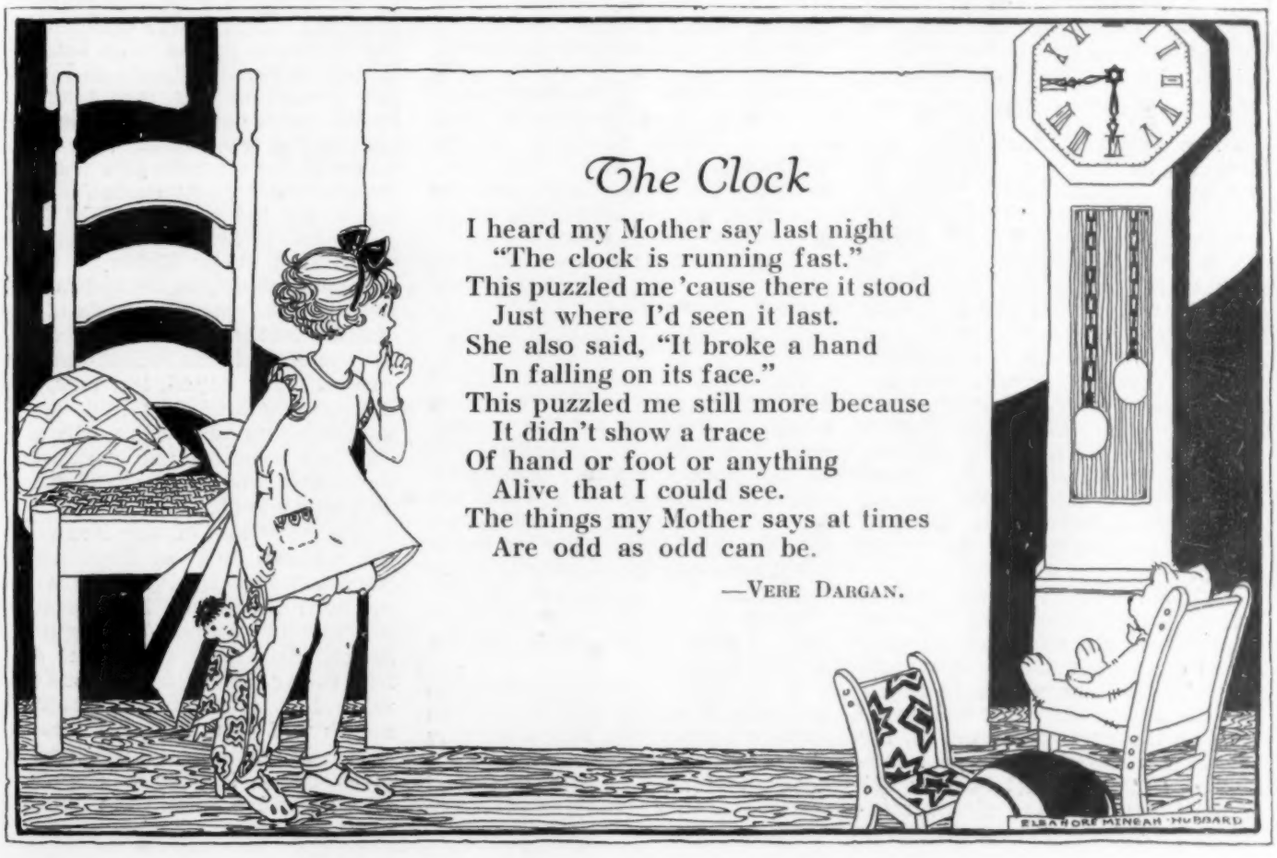
But the spreading oak did not answer. She was sound asleep.

Nearly all that winter the little oak's sleep was restless. Just when she would feel herself slipping off into the quiet, peaceful sleep that she wanted so badly, the wind would shake her just enough to keep her half awake. It was almost spring before the wind had shaken her so much that the dead leaves had all fallen off, and only then did the poor tired little oak sink into a sound sleep.

That spring, the little oak which had been so sturdy and perky and vigorous, awakened yawning and stretching and only half rested. The first thing that she saw was the dear spreading oak in her pale green spring gown. "Oh-h," the little oak cried, rubbing her sleepy eyes, "those leaves are prettier than the ones you had last fall."

"Yes," answered the spreading oak, "I like this color best for spring. Your leaves are pretty too!"

"Mine?" The little oak shuddered at memory of the ugly brown ones she had last seen. But when she looked down and saw her new delicate green ones, she would have waved her branches for joy if she had not been so tired from her restless winter. "Oh-h-h," she sighed, "dear Spreading Oak, I've had a dreadful time while you were asleep. The wind blew so hard and cold. You bet I'll shed my leaves early this fall."



The Clock

I heard my Mother say last night
"The clock is running fast."
This puzzled me 'cause there it stood
Just where I'd seen it last.
She also said, "It broke a hand
In falling on its face."
This puzzled me still more because
It didn't show a trace
Of hand or foot or anything
Alive that I could see.
The things my Mother says at times
Are odd as odd can be.

—VERE DARGAN.

Health and the School

Edited by J. Mace Andress, Ph.D.

The Teacher's Health

THE teacher's health is of tremendous importance in modern education. The American people are so intent on the construction of million dollar schoolhouses with the latest and best equipment that they often fail to realize that these material things after all provide only for a more effective contact between the mind of the teacher and the minds of the children. When eager children and inspiring, sympathetic and well trained teachers meet the miracle is performed. The teacher teaches and the children learn. A superior teacher may get unusual results even when handicapped by a lack of books and suitable equipment. But no matter what the general physical environment of a school may be the healthy teacher is a practical necessity.

Healthy Teachers Best Teachers

There was a time when the teacher's health was regarded as her own responsibility. This is partly true, but school administrators have discovered that the teacher's health is distinctly related to finance and professional skill. The absences of teachers due to illness cost the school system money and make for inconvenience and inefficiency. The teacher who does not have good health is handicapped in her work. Ill health breeds despondency, irritability, chronic fatigue and lack of interest. Good health is fundamentally the basis of enthusiasm and optimism. It facilitates the employment of the teacher's gifts.

Particularly in the teaching of health is the mental and physical condition of the teacher important. If she enjoys abounding health she naturally and unconsciously stimulates healthful attitudes and practices on the part of her pupils, for health, like morals, is in part contagious. If she is not healthy her verbal instruction and direct training are not likely to bear fruit.

As an example of this consider the little girl in a fourth grade who told her mother that she did not like her teacher. The little girl said, "She is always scolding us about the things we do not do but she does not do any better or as well herself. She says 'Stand tall' but she stands like this." And the little girl stood with shoulders back and stomach protruding in scornful derision of her teacher. In another room the teacher says little to her pupils about posture. She stands so beautifully erect that her presence is a constant reminder of correct posture.

The teacher who does not practice the rules of healthful living cannot expect to get results any more than an instructor in mathematics who is always making mathematical errors. It has been found incidentally that one of the by-products of health teaching is the improvement in the teacher's own health. It is almost impossible for a teacher who is attempting to get her pupils to eat green vegetables and sleep longer not to put into practice some of those suggestions herself.

Greater Satisfaction from Work

Not only do the pupils, school and community profit from the health of teachers but the healthy teacher gets greater satisfaction out of her work. Contrary to general opinion, teachers as a class are fairly healthy. Recent studies show that the annual sick leave for teachers throughout the country is lower than that for men and women employed in a variety of industrial and clerical occupations in the United States.

A comparison of mortality rates indicates that teachers as a class are usually healthy. In New York City the death rate for teachers is 3.6 per thousand for all ages as compared with 13.5 per thousand for the entire population.

The physical examination of students on entrance to normal schools, training in physical education and hygiene, the improved conditions in heating, lighting, ventilating and general sanitation in school buildings, better pay and sabbatical years are largely responsible for this healthy condition of teachers. Yet anybody who is supervising a body of teachers knows that the health of that group could be greatly improved if the individual teachers could be stimulated to take an active interest in their own health.

A Monthly Check-Up

The Massachusetts Federation of Teachers' Clubs is one organization that is taking just such an interest. Its committee on hygiene and physical education has just issued a health score card for teachers. It enables the teachers to score themselves on those health practices that seem necessary for "fitness for work —and for the enjoyment of life." A school principal or supervisor might find it profitable to make this card, which is reproduced on the opposite page, the basis of one or more teachers' meetings in which the various items might be discussed. It is hoped, however, that many teachers who read this article will check up on it voluntarily after the first reading and will score themselves thereafter every month during the present school year.

The selection of the items and the value placed on them cannot represent any final authority and the card should not be substituted for careful medical diagnosis. Nevertheless the teacher who finds her rating and tries seriously to raise her score from month to month will give herself a practical course in healthful living. The card gives every teacher a chance to take an active part in the improvement of her own health.

HEALTH SCORE CARD

	Score	Score
I. SIGNS OF HEALTH		
1. Can you work and play without being more than naturally tired mentally or physically at bedtime?	40	
2. Are you rested when you get up in the morning?	40	
3. Is your appetite good for wholesome food?	30	
4. Are you free from persistent trivial worry?	30	
5. Do you enjoy mingling with other people?	30	
6. Have you confidence in yourself?	30	
7. Is your weight within 10% below or 15% above the average for your height and years?	40	
8. Does your posture indicate health and efficiency?	30	
9. Are your arches normal and are you free from pain in your feet and legs?	20	
10. Are your muscles resilient?	20	
11. Is your vision either normal or corrected by glasses?	20	
12. Can you hear ordinary conversation at sixteen feet?	20	
13. Is your skin clear; color good?	20	
14. Is your hair glossy, but free from excessive oil (not brittle and dry)?	20	
15. Are your teeth either sound or filled?	20	
16. Are you free from constantly recurring infection, including cold?	30	
17. Are you free from constant or recurring pain?	30	
Score	470	
II. HEALTH HABITS		
1. Are you eating some dark bread daily?	20	
2. Do you drink six glasses of water every day?	20	
3. Do you average at least eight hours' sleep every night?	30	
4. Do you eat sweets in moderation and only at the end of a meal?	30	
5. Do you eat only at mealtime? (Fruit may be excepted.)	10	
6. Do you eat two vegetables, exclusive of potato, every day?	20	
7. Is one of these an uncooked vegetable (celery, lettuce, cabbage, etc.)?	20	
8. Do you eat fruit at least once a day?	20	
9. Do you eat one of the following every day: meat, milk, cheese, nuts, fish, egg?	20	
10. Do you take your meals regularly?	20	
11. Do you eat slowly?	20	
12. Do you take a full bath at least twice a week?	10	
13. Do you clean your teeth at least twice a day?	10	
14. Do you have a bowel movement each day (without a cathartic)?	30	
15. Do you average at least an hour out of doors every day?	30	
16. Do you exercise vigorously at least one-half hour every day (either outdoors or in)?	20	
17. Do you take at least ten hours each week for recreation, social activity, reading, etc. (in addition to the daily exercise)?	30	
18. Have you a vital and satisfying interest outside of your work?	30	
19. Do you have your bedroom window open at night?	10	
20. Do you endeavor to maintain your best standing and sitting posture?	20	
21. During business hours do you wear comfortable walking shoes?	10	
22. Do you have a thorough physical examination once a year?	50	
23. Does your dentist examine your teeth twice a year?	40	
24. If you have physical limitations do you know them and live within them?	20	
Score	530	
Total score	1,000	

TEACHING HEALTH

(In this column will be published each month concrete examples of good health teaching. Teachers are invited to send in contributions not exceeding 600 words and preferably less to the editor of this department. Illustrations of the actual work of children will be welcomed. Contributions accepted will be paid for but no manuscripts will be returned.)

A FOURTH GRADE HEALTH CLUB

"THE meeting will please come to order. We will have the reports of the inspectors."

We are in a fourth grade school and the president of the health club has just opened the regular weekly meeting. This sounds interesting and when we see that the speaker is only 10 years old we decide to stay. Let us listen.

"I report John for nails—once; Earl for dirty teeth—twice; James for dirty hands—five times. Everybody else is all right."

"Mr. President."

"Fern."

"I think we ought to do something about James. This is the second time he has been reported for dirty hands and he just spoils our row."

"Mr. President."

"John."

"I think so too. He spoils our room."

"Mr. President."

"Miss Gougler."

"If James is not able to take care of himself, how about having a nurse for him?"

"Mr. President."

"Sam."

"I move we have a nurse for James."

"I second the motion."

"It has been moved and seconded that we have a nurse for James. Is there any discussion?"

Various pupils rise and express their approval of the plan. Several suggest giving James another chance. One thinks it might be better to put James out of the club. Objection is made to this, "because then he won't learn any more about health."

"Are you ready for the question?"

"Question."

"All in favor of a nurse for James, stand. All against, stand."

The motion carried almost unanimously. James says nothing but looks abashed.

"Julia, you are to be the nurse."

At the next meeting one week later the report of the inspector showed no improvement in the condition of James.

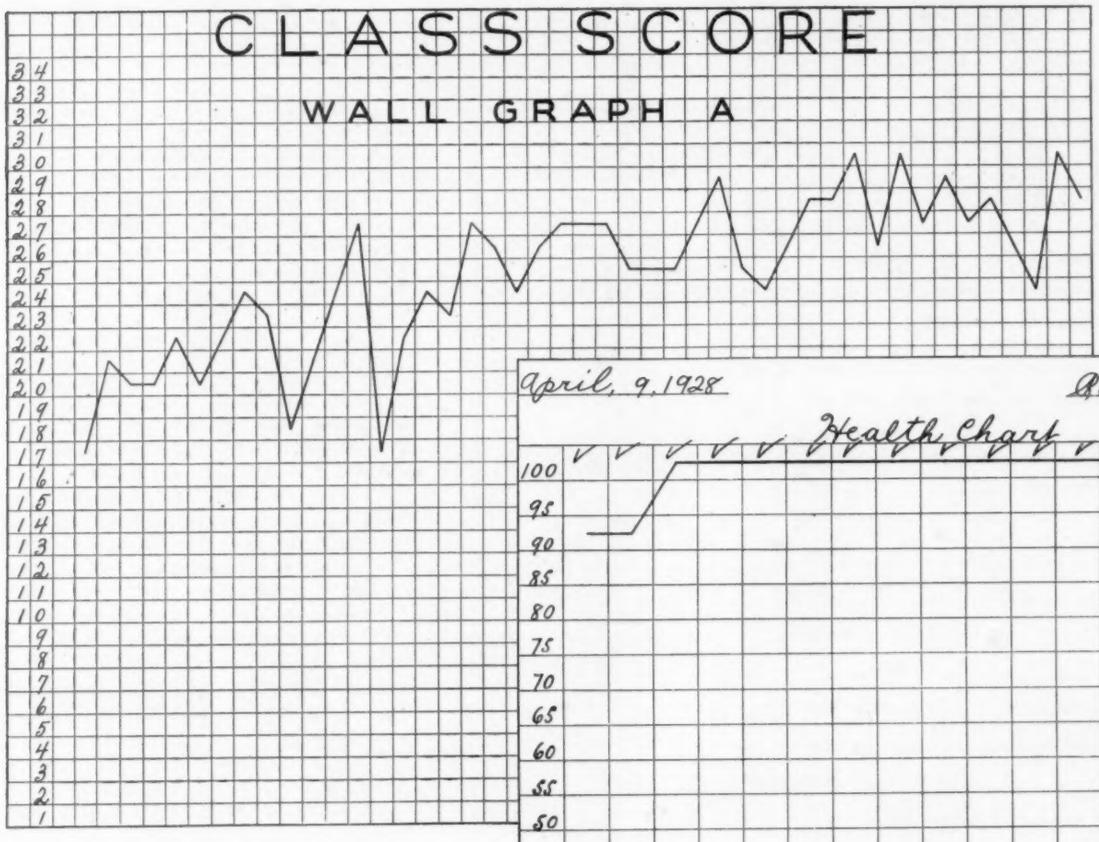
"Julia, were you the nurse for James?"

"Yes."

"Did you examine him?"

"He didn't come to me."

"If you broke your leg and were taken to the hospital, would you go



Wall graph A indicates the number of 100 per cent pupils in thirty-five inspections. Note the improvement.

An individual health chart is shown at the right. In health inspections pupils were graded as follows: basement, 10; hair, 10; hands, 5; nails, 5; face and neck, 10; ears and eyes, 10; teeth, 10 shirt clean and fastened, 10; necktie, 10; sweater and overshoes, 10; handkerchief, 10.

to the nurse or would the nurse come to you?"

"The nurse would come to me."

"Why didn't you go?"

Julia gets on the job and at the next meeting reports that James has cleaned up.

The foregoing is a fair sample of the way in which thirty-four pupils in a fourth grade B, in which health habits and discipline were much below standard, took hold of the health problems in their classroom.

We started in September with daily hand inspection which I carried out personally, praising the good points. After a week I started marking delinquents on a wall chart containing the class roll. I used a red dot which we considered a sign of danger just as a quarantine card marks a door. As the interest increased we added inspection of faces, then necks, and finally ears, thus slowly but surely raising the standards.

I then withdrew and six pupils, one for each row, took up the work of inspecting and marking the wall chart. When this was working well, I suggested that the inspectors make notes of their findings and report weekly. At the end of the first week I said, "What do you say to forming a health club and reporting at club?" Everybody was enthusiastic and we went into nominations for officers. At that point I began to work in school discipline by observing, "Let's see, John for president. By the way, John, was it you who forgot to hand in your work yesterday?" The pupils caught the idea and soon a number of nominees were eliminated much to their surprise and chagrin.

From time to time we added inspection of nails, hair and handkerchief, and the removal of sweaters, coats and overshoes. Care of the teeth was the last item introduced and presented the greatest difficulty, but, by enlisting the aid of the dental hygienist, we got dental appointments for most of those who needed corrections. Inspection was held between first and second bells and tardy pupils lost ten points in addition to any inspection shortcomings.

Each morning the 100 per cent pupils were asked to stand in front of the class. "Let's put them on a chart," was my next suggestion. Then came wall graph A. "Let's see how you would look on a chart," brought in the individual graph B marking ten points.

I guided the club through my floor privileges as a member. After business was finished I was asked to take the floor to teach or read.

The school health supervisor, in evaluating this plan of pupil participation, gave the following criticisms:

1. Most important result—the formation of correct health habits without consciousness of the teacher's guidance.
2. Leadership training—officers, inspectors, etc.
3. Cooperation.
4. Self-government training excellent.
5. Self-discipline effective because it is enforced.
6. Evident pride in self, room and school.
7. Good citizenship training and knowledge of parliamentary practice.
8. A medium through which the teacher could put across worth while ideas along almost any line.

A. MAY GOUGLER,
Norristown, Pa.

NEW HEALTH BOOKS AND TEACHERS' MATERIALS

"School Posture and Seating"[1] is one of the outstanding books in school hygiene for the year. The literature on scoliosis is steadily growing and much attention has been given in physical education programs to the hygiene of standing and movement; yet in such a simple matter as wholesome sitting habits there has been practically no literature or organized knowledge.

This is the more remarkable when one stops to consider that modern life is not only sedentary but as Dr. Bennett says: "The most universal occupation of civilized human beings is sitting." Most of us spend a large proportion of our time every day in sitting. The careful researches of the author lead him to believe that there is nothing we do so much or so badly as sitting. To sit well is to be conspicuous. The ordinary person merely slumps into his seat and apparently the makers of seats have conspired to make it difficult for us to sit as we should.

It is practically impossible for us to stand as badly as we sit because with our bodies stooped as they often are we should simply fall over. Although there are no statistical data showing the correlation between habitual stoop and ill health, Dr. Bennett believes that common observation and popular opinion would indicate that the correlation is high. Women are particularly sensitive to posture perils. Since sitting habits are formed in schools during the plastic period of life a consideration of school posture and seating becomes an exceedingly important subject.

Illustration from "A Tale of Soap and Water."

Dr. Bennett has made a thorough investigation in his field, having consulted the best available literature and having measured thousands of school children. His treatment of the anatomy of the body in relation to sitting makes available information which has not been accessible to teachers heretofore. Chapter IX on "The Teaching of Sitting Posture" will be of special interest to normal school classes in hygiene and to teachers.

In the order of their urgency the reforms needed in school seating according to the author are thus: (1) lower seats in all grades; (2) shorter seats, in most cases; (3) less backs, lower at the top and higher at the bottom; (4) simple but more rational forms of seats and backs; (5) lower tops and closer spacing of decks; (6) arrangement according to well known but sadly neglected principles of lighting; (7) the adjusting of seats that are adjustable and the moving of those that are movable (intelligently, to be sure, but quite simply); (8) appreciation of the sanitary, esthetic and structural excellencies which are available; (9) selection according to the diverse requirements of varying grades and uses; (10) buying with the same foresight and intelligence that is applied to the purchase of other things."

One of a number of unique and serviceable publications issued by the Cleanliness Institute is "A Tale of Soap and Water."[2] Cleanliness is one of the fundamentals of healthy living, yet in all probability few of our schoolhouses are equipped with soap, water and towels so as to make possible adequate practice in washing the hands.

What a story lies behind the struggle of man to keep himself clean! It is a story that has never been told in hygiene books or in books of science in any connected way. Miss Hallock in charming fashion carries us along the racial trails of cleanliness. Amid the glory of Rome and Greece one learns of the efforts to keep clean. The trail runs through many lands and among many strange people in a story interwoven with choice bits of history, literature and science.

Pen and ink sketch from new Hallock book on cleanliness.

Every teacher in the upper grades will welcome this valuable book for supplementary reference. A certain number are available free.

A valuable study[3] of school house planning has been prepared by a distinguished committee of educators, architects and engineers with the aid of the General Education Board. It is practical, definite and well written with adequate reference to health, safety and beauty. It should be consulted by all those interested in construction.

"Essentials of Healthy Living"[4] is a pamphlet that presents the minimum essentials in hygiene. It is based largely on "Health Essentials" (Ginn and Company), by Andress, Aldinger and Goldberger. This outline is written in simple, direct language and is adapted for pupils of the seventh, eighth and ninth grades.

Every student of health education will find the Physical Education and School Hygiene circulars[5] of the U. S. Bureau of Education filled with health news and bibliography interesting and suggestive.

1. By Henry Eastman Bennett. Pp. 323. Ginn and Company, Boston, 1928.

2. By Grace T. Hallock. Pp 96. Cleanliness Institute, New York, 1928.

3. REPORT OF COMMITTEE ON SCHOOL HOUSE PLANNING. Pp. 164. National Education Association, Washington, D. C., 1925.

4. By J. Mace Andress and I. H. Goldberger. Pp. 32. The Jennings Publishing Co., Newtonville, Mass., 1928.

5. Circular No. 12, U. S. Bureau of Education, Washington, D. C., May, 1928.

New Books *on* Health

Reviews of Interest to General Reader, Parent and Teacher

THE PROBLEM CHILD AT HOME

By Mary Buell Sayles. Pp. 342. Price $1.50. Published by the Division of Publications, Commonwealth Fund, New York, 1928.

THERE was a time when the problem child received a sound spanking and was put to bed. Thereafter he temporarily ceased to be a problem to his parents, if not to himself. Later, he became a serious problem to every one.

Under the auspices of the Commonwealth Fund, the author of this book has studied the difficulties that arise in parent-child relationships, basing her views on a study of some 200 records of children treated in clinics. After a consideration of some of the most fundamental problems, she provides twelve narratives, setting forth actual histories of cases in which problems arose because parents had mistaken attitudes. These cases are presented in narrative form, and are exceedingly interesting.

The book is not an "L. Emmett Holt" on the mental care of the child. It is instead a serious consideration of mental problems from which an intelligent parent can derive sufficient enlightenment to enable him to solve many questions for himself. The book is beautifully printed.

MORRIS FISHBEIN, M.D.

FOOD, NUTRITION AND HEALTH

By E. V. McCollum, Ph.D., Sc.D., and Nina Simmonds, Sc.D. Second edition. Pp. 148. Price $1.60, postpaid. Published by Authors, East End Post Station, Box 25, Baltimore, Md., 1928.

BECAUSE of the demand for this little volume, a second edition has been found necessary, following four reprintings of the first edition. Today every one is or should be interested in food and diet. Scientific medicine finds the subject of increasing importance in relationship to the prevention and cure of disease. Because of the growth of our civilization, and the problems of transportation and preservation of food, knowledge is necessary regarding the qualities of food substances under varying conditions.

In this book the authors first present the general problem and then a detailed consideration of each of the vitamins and of its relationship to health and disease. They take up consecutively the mineral matter, proteins, carbohydrates and fats in foods, the dietary habits of men, and the properties of food substances. A special chapter is devoted to tea, coffee and soft drinks, and other sections to the diet as related to the nervous system, the digestion and dentistry. The exceedingly popular questions of reducing diets are given succinct but complete elucidation.

In the opinion of this reviewer, this book by McCollum and Simmonds is the best small guide to diet and health that is anywhere available. MORRIS FISHBEIN, M.D.

PREVENTIVE AND CORRECTIVE PHYSICAL EDUCATION

By George T. Stafford. Pp. 328. Price $3. A. S. Barnes and Company, New York, 1928.

THIS book covers valuable information for giving the physically defective person the proper type and amount of physical education to meet his needs and capacity. Although most of the details of the specific exercise programs suggested are for university men, the problems discussed are of general interest, since they trace back cause and effect into childhood and cover in a brief but effective way the considerations for wholesome development.

There is also considerable technical presentation of physiotherapy, physiology of exercise, body mechanics, foot conditions, heart abnormalities, malnutrition, athletic injuries and infantile paralysis, with suggestions for prevention and treatment. These presentations, though in most points necessarily brief, emphasize the knowledge necessary for treatment and give a sane point of view of the relation of preventive, corrective and remedial physical education to life and adequate living. ALICE EVANS.

THE DAILY HEALTH BUILDER

By C. Ward Crampton, M.D. Pp. 161, with illustrations. Price $1.50. G. P. Putnam's Sons, New York, 1928.

BEGINNING with an outline of what constitutes a good health examination, the author passes quickly to exercise. He writes effervescently, emotionally and enthusiastically. His book is handsomely illustrated with photographs of persons who seem to be getting the utmost enjoyment out of their exercise. If there is any fundamental criticism of this volume to be made, it is that it seeks to make of exercise a cult rather than a useful technic for moving the muscles.

The author's vocabulary is full of special words that he has developed for his exercises, and there are pages in the text that outdo the best—or worst—that has been accomplished by the most imaginative patent medicine promoters in their assaults on constipation and autointoxication. His schedule calls for at least two hours a day devoted to exercise. To a somewhat conservative reader, this seems a little excessive for those who feel that life offers other accomplishments beyond the building of muscles.

MORRIS FISHBEIN, M.D.

THE YOUNG CHILD

By Bird T. Baldwin. Pp. 34. Price, 35 cents. American Library Association, Chicago, 1928.

THE American Library Association asked Prof. Bird T. Baldwin, for ten years director of the Iowa Child Research Station, to prepare for the general reader a guide book to a few of the most useful books in the field of the care of the child. The pamphlet now issued provides useful advice as to the physical and mental care of the young child, as well as a discussion of five or six books that the author believed to be fundamental and a dozen more that be thought highly advisable as supplementary reading. The parent who wishes to read seriously in this field will find the little pamphlet by the late Professor Baldwin as useful for this purpose as is a road map to the motor tourist. It picks out the smoothest roads and gets him to his destination by the shortest routes.

MORRIS FISHBEIN, M.D.

News *and* Views

From the

FIELD OF HEALTH

USES MAGNET TO HELP EXTRACT BULLET

A bullet that had been in an ex-soldier's lung for ten years was removed by means of a magnet recently by Dr. Chevalier Jackson at the bronchoscopic clinic in Philadelphia.

The soldier was wounded in action in 1918 by a machine gun bullet in the jaw. The wound healed and the man was discharged. Several years later a cough developed. The x-ray showed a bullet in the lung. The only explanation of its being there appeared to be that the bullet had been nearly spent when it struck the jaw and had been carried into the lung by an indrawn breath.

When the forceps was inserted, the instrument shoved the bullet into an inaccessible position. Since the bullet was covered with steel, Dr. Jackson was able to maneuver with the magnet outside the man's chest so as to draw it into a favorable position and extract it through the throat.

COLDS AND INDIGESTION DISABLE WORKERS

Colds and indigestion caused 68 per cent of disability over a period of ten years among industrial employees of a large public utility in one of the larger cities of the United States, studies conducted by the U. S. Public Health Service have recently shown.

Disabling industrial accidents showed a downward trend, in contrast to a stationary trend for injuries sustained outside of working hours. The more severe respiratory diseases showed a tendency to decrease among the men, but the number of cases among women was too small to afford reliable data.

The experience of this group cannot be considered typical of the trend of disabling sickness, comments *The Journal* of the American Medical Association, but even this fragmentary information is helpful in attacking the complex problem of how to prevent time lost from work on account of sickness as well as time lost at work on account of minor indispositions.

JAPANESE FORGE AHEAD IN CHILD WELFARE

Modern developments in the Orient include much child welfare activity, the Children's Bureau reports in its bulletin.

In Tokyo the city fathers have set apart sections of 200 streets for children to play in after school hours, traffic being stopped on these streets from 1 to 5 o'clock in the afternoon.

For younger children St. Luke's International Hospital in Tokyo has organized a habit clinic, which will hold classes for mothers in the training and physical care of their children of preschool age. A well baby clinic was started at St. Luke's a year ago in charge of a Japanese woman graduate of the University of Michigan with special training in pediatrics. Its roll now numbers more than 600 babies.

DUMB RABIES

Rabies does not always make itself known by the presence of furiously mad dogs running wildly about biting everything in their vicinity, comments the health bulletin of Rochester, N. Y. It more often appears in the mild form known as "dumb rabies."

A dog with dumb rabies becomes listless. The tone of its bark changes and it has a staggering gait that finally results in paralysis. Dog bites are often inflicted on the hands of dog owners who because they fear that the hoarse bark and the difficulty in closing the jaw may be due to something in the dog's throat try to get the supposed object out with their hands. In the attempt the hand is scratched and rabies ensues.

The danger of rabies is so serious that every suspected dog should be considered rabid until proved otherwise. Bites must be treated as soon as possible, for if rabies develops there is no cure.

MEDICAL SCIENCE MAY PROFIT FROM PACIFIC EXPEDITION

Studying blood groups in the people of the islands of the Pacific will be a part of the work of the medical officer of the Crane Pacific Expedition of Field Museum, Chicago, which recently sailed.

Dr. W. L. Moss, professor of medicine at Harvard University Medical School, who will accompany the expedition as medical adviser, has done considerable work on this problem, having established the classification of blood groups now in use.

The Crane expedition also offers unusual opportunities for the study of tropical diseases in the Pacific islands and Dr. Moss believes that his investigations will yield worth while contributions to science.

NEGROES TEETH WHITE IN CONTRAST ONLY

The gleaming white teeth of the negro are white only because of their background and environment. If a negro's tooth was extracted and laid beside a tooth from a white man, it would be darker and more yellow than a white man's tooth. The color of a tooth for each individual is such that it is harmonious with the general color scheme of his makeup.

The attractiveness of teeth does not depend as much on color as on shape, regularity, luster and firm, healthy, pink gums, says Dr. William M. Gardner. Little can be done to change the color of teeth. Perfectly white teeth would be gaudy and inharmonious.

A CORRECTION

In the October issue of HYGEIA it was erroneously stated that Dr. Wendell C. Phillips, author of the article, "Advice to the Hard of Hearing," was president of the American Federation of Organizations for the Hard of Hearing. It should have been said that Dr. Phillips was the founder of the federation. Dr. Horace Newhart of Minneapolis is the present president. Dr. Phillips is now president of the New York League for the Hard of Hearing.

STRICT DIET IS IMPOSED ON THE "SONS OF SLUM AND GRAVY" at the West Point football training tables.

Pacific and Atlantic

CONSERVING CANINE TEETH

The health of a movie dog is important. It would not do to have Flash suffering from a focus of infection, such as an abscessed tooth, while he is working on a big picture. Hence the dentist.

Pacific and Atlantic

Pacific and Atlantic

SPORTS OF THE FIRST AMERICANS

Skilled in the use of implements unfamiliar to the whites, this Indian spears fish from the ledge above Waterton Lake in the Canadian Rockies.

THIS AMBULANCE OF THE CIVIL WAR, THE ONLY ONE OF ITS KIND, has lately been exhibited in Washington.

Keystone

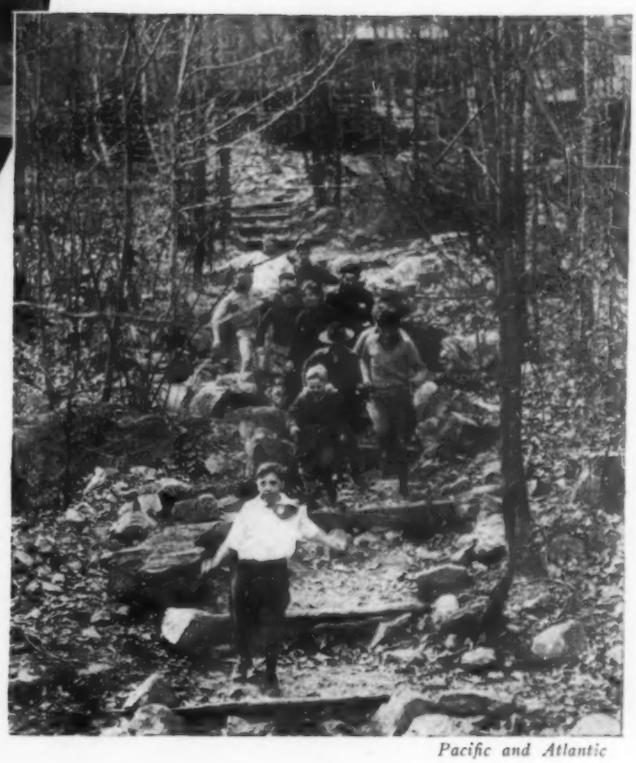
Ewing Galloway

ABOUT NOVEMBER 29—

Six year old Emily will have a share in the Thanksgiving dinner when Mother lets her stand on a chair and baste the turkey.

FOOD AT THE END OF THE TRAIL

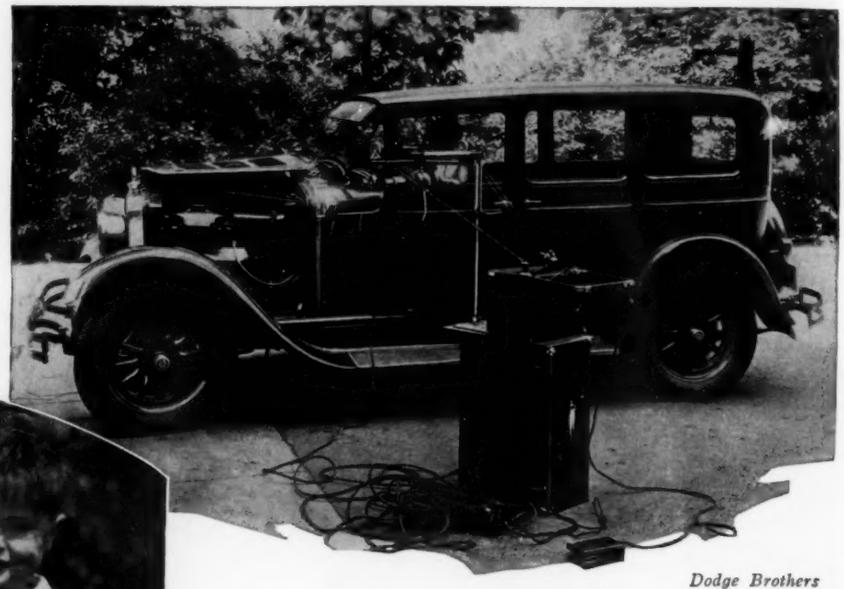
The jingle of the dinner bell has quickened the steps of these romping boys, who are Scouts from New York City having the time of their lives at Kanohwahke Camp.



Pacific and Atlantic

MOTOR CAR RUNS X-RAY

A physician has devised this portable x-ray outfit driven by his automobile engine for use in examining patients who cannot be taken to a hospital.



Dodge Brothers

Pacific and Atlantic

AS THEY GROW IN CALIFORNIA

Healthy specimens of California childhood are chubby Robert and Roberta Hoffman, who were accorded a unique distinction recently. They had a place of honor in a parade of native sons and daughters of California at Oakland, because they were the only twins born during the diamond jubilee of the organization three years ago.

ALL MODERN CONVENIENCES

Chasing a cat cost this collie puppy a broken back. His master, a physician, constructed him an ingenious wheel chair that furnishes him locomotion while his back is immobile.

Wide World

Questions *and* Answers

If you have a question relating to health, write to "Questions and Answers," Hygeia, enclosing a two-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed.

Electrolysis

To the Editor:—Will you give me an opinion on the use of the multiple needle in comparison to the use of the single needle in electrolysis?

H. R. C., New York.

Answer.—Generally speaking, the use of the single needle in electrolysis is preferable to that of the multiple needle. With the latter method the work can be done more quickly, but increased speed is obtained at the expense of reliability. The use of the operator's hand in steadying the needle, which is impossible with the multiple needle method, is essential, as scarring is more apt to follow when the less accurately controlled method is employed.

Length of Life

To the Editor:—Does the average person of today live longer than people a hundred years ago did?

A. A., Pennsylvania.

Answer.—The average age at death is much higher today than it was a hundred years ago. Reliable figures are not available for previous centuries, but the figures that are to be had as to the length of life in Breslau, Germany, show that in the seventeenth century the average age at death was 33. In the following century, the average age was 39. In 1855, in Massachusetts it was 40; in 1878-1881 in New York City, it was 41. In 1901, in the original registration area of the United States it was 49; in 1910, it was 51, and in 1920 the average age at death in the twenty-four states contained in the registration area at that time was 56.

Colon Institutes

To the Editor:—Can you give me the names and addresses of one or two establishments or institutes that make a specialty of colon or intestinal irritation?

E. D. R., Illinois.

Answer.—We do not advise our readers to patronize any of the so-called colon institutes. Such treatments can be prescribed by the physician, who will also indicate the place and the manner in which they are to be taken.

Depraved Appetite

To the Editor:—I have a friend who for years has chewed lead pencils and swallowed the lead. She says she has a craving for it. How can you account for this and to what extent is it harmful?

A. H. B., New York.

Answer.—There is a well recognized abnormal condition known as pica, which is defined as "a depraved appetite, a longing for substances not fit for food such as slate pencils, wood and the like." It is not infrequent among those who are mentally subnormal. It is much less common among persons who are otherwise apparently quite normal. Fortunately, in the case mentioned, the graphite (not lead) found in pencils is a form of carbon that is not poisonous. The habit is a disagreeable and vicious one, however, and ought not to be indulged in.

Sun Lamp for Pleurisy

To the Editor:—In the August Hygeia is an advertisement of the Alpine sun lamp. I came to New Mexico for pleurisy and find that as long as I spend much time in the sun I am without evidence of it. After this year, I will be employed outside. Has any competent authority proved that such a device as the Alpine sun lamp could be substituted for the treatment of pleurisy?

W. G. D., New Mexico.

Answer.—The council on physical therapy of the American Medical Association has drawn up a report strongly advising against the use of any ultraviolet lamp except on the advice and under the direction of a physician. If being in the sun relieves the symptoms, we should strongly advise any one to remain where there is as much sunlight as possible available throughout the year.

Walking Influenza

To the Editor:—Is there a condition such as walking influenza or walking typhoid in which there is a wandering compulsion? Are there any cases on record, aside from bulbar palsy, of permanent paralyses of arm or leg as a sequel of influenza?

F. C. S., Illinois.

Answer.—The adjective "walking" is applied to cases of pneumonia, influenza and some other conditions when the actual disease is present but is mild or has not yet reached a severe stage. The patient is able to be up and about, though frequently to his own detriment. Influenza might be responsible for a number of conditions that could be associated with paralysis of the leg.

Tuberculosis in a Brass Worker

To the Editor:—I have been working in a brass shop for the last seventeen years and last year I contracted tuberculosis. Would you advise me to go back to a brass shop after I am able to work again? The work I was doing was not hard. It was bench and machine work. I did not do any buffing, polishing or grinding or work around melted brass, where I would get any of the fumes. My doctor told me he thought it would be all right to go back to work there, but I should also like your idea on the subject. E. J. W., Iowa.

Answer.—Ordinarily, a patient who has recovered from tuberculosis of the lungs is advised to return to his former occupation, unless it is of such a character as would cause a return of the tuberculosis.

It is likely that a man who has been a bench worker for seventeen years has contracted this disease largely because of the character of his work. Bench workers may not encounter much dust, but they are likely to convey to their mouths uncertain quantities of oil that is filled with dust. The metal thus finds its way into the physical circulation as certainly as if it were breathed in. It would seem, therefore, that a return to the old job in this instance would be the opposite of beneficial.

A cure is not considered complete until two years have elapsed since the last demonstrable sign of disease. If this is true, the patient has some time still to be under observation. His future, as far as occupation is concerned, must be left undecided at this time.

Vegetarian Diet

To the Editor:—I am a girl 16 years old and have been a vegetarian for two years. I live on a farm, and my daily diet consists of two eggs, one quart of milk, four slices of whole wheat bread, vegetables and fruit. I weigh 130 pounds and my height is 5 feet 7 inches. Do you think I can be healthy without eating meat? Is the diet I have described sufficient for me? M. K., Michigan.

Answer.—It is entirely possible for a person to maintain good health on what is called a vegetarian diet, especially when this is supplemented by animal foods such as eggs and milk. The best test of the sufficiency of the food taken is the effect on the individual. On the average a girl of 16, who is 5 feet 7 inches in height, weighs 132 pounds. The weight may vary several pounds above and below this average without indicating lack of health.

It is impossible to state whether the quantities of food the girl is getting are sufficient, because she makes no statement as to the kind or amount of vegetables and fruits she takes.

Basal Metabolic Rate; Normal Blood Pressure

To the Editor:—1. What is the approximate basal metabolic rate of a person who has had a thyroidectomy? What should the rate be two years after operation? 2. What is the normal blood pressure? Is one hundred plus the age regarded an accurate determination? R. S., Washington.

Answer.—1. In the operation termed thyroidectomy the whole gland is usually not removed but a small portion of one lobe is left intact. If the portion remaining is or becomes hyperactive and continues to elaborate a large quantity of gland secretion the basal metabolic rate may remain a little high. If, on the other hand, the portion that is left intact is inactive, the patient may have a metabolic rate lower than that usually seen for a normal individual. Just how much gland to leave at the operation is difficult to judge and there is no definite means of telling whether the portion left will or will not be overactive.

2. The question of normal blood pressure has never been definitely decided because it varies with the individual and is changed by nervous and other factors which the individual cannot control. The average systolic blood pressure in 50,000 accepted life insurance risks was as follows:

Age	
15-19	120
20-24	122
25-29	123
30-34	124
35-39	126
40-44	128
45-49	130
50-54	132
55-59	134
60-64	135
65 or over	136

Variations of from 10 to 20 points above or below these averages would be considered normal.

Cretinism

To the Editor:—What are the probable causes of cretinism? What might be the cause of it in a family in which there is neither tuberculosis nor syphilis? Can a prospective mother do anything to prevent this disease in her child? S. M. W., Indiana.

Answer.—Cretinism is usually the result of progressive thyroid degeneration through several generations of mothers living in an endemic goiter focus. It goes something like this: Mother has a large nontoxic goiter, daughter has myxedema, granddaughter has cretinism, great granddaughter, if any, is likely to be an idiot or imbecile. The likelihood of such generation-by-generation progressive deterioration is one of the arguments for cleaning up every endemic goiter focus. Tuberculosis and syphilis have no direct bearing in the matter.

Prospective mothers can almost certainly prevent this form of disease in their offspring by taking iodine; this prophylactic treatment, however, should be supervised by a practicing physician.

Improving Appearance of the Hands

To the Editor:—My hands are rough, wrinkled and unshapely. I bite my nails deep down into the flesh. As I am a dental assistant I should like to have nice hands. What will help me break my bad habit and also make my hands smooth and white? M. S. L., Pennsylvania.

Answer.—The first thing to do to improve the condition of the hands is to stop biting the nails. That is sometimes difficult. Painting the nails with a bitter tasting substance like tincture of quassia or solution of quinine serves as a reminder only but may help some.

Washing the hands not too frequently with a bland soap and soft water and anointing them at night either with an oily preparation or with a glycerin mixture helps to keep them in order. If the nails are bitten at night, gloves should be worn during sleep.

If these simple suggestions are not sufficient, one should consult a specialist in diseases of the skin.

Gallbladder Operation

To the Editor:—Would you give me some idea of the proper diet for a woman of 30 who has had the gallbladder removed? Is it true that women become obese after this operation? Can this possibly be avoided by diet or other means? What becomes of the bile after the gallbladder is removed? Can a person become bilious after the gallbladder is removed?

J. P. W., Rhode Island.

Answer.—After the gallbladder is removed, the bile flows directly from the so-called biliary duct into the common duct and so into the intestines. The removal of the gallbladder does not as a rule disturb the function in any noticeable way. No particular diet is good for all cases; the diet must be adjusted by the physician to the individual. Tendency to take on weight is not infrequently seen after any major operation, because of the enforced rest and lack of exercise. A series of articles on the gallbladder is now appearing in HYGEIA.

Sitz Bath

To the Editor:—What is the beneficial part of a sitz bath for treatment of kidney trouble—the amount of water used, the length of time in water, or the amount of perspiring that follows? Also which is weakening and reducing to the patient?

J. D. K., West Virginia.

Answer.—A sitz bath is an arrangement in which the pelvis, or lower part of the body, and the upper part of the thighs is immersed in water—usually hot. The old-fashioned wooden wash tub was a satisfactory vessel in which to take such a bath, the patient sitting in the tub with the knees over the edge and the upper part of the body well above the water. The water should be sufficient to cover the lower part of the abdomen and upper part of the thighs and as hot as can be comfortably borne, hot water being added carefully every few minutes to maintain the temperature.

When the patient is covered with a blanket that projects over the side of the tub, there results profuse perspiration, and the dilatation of the blood vessels of the skin, which

occurs as the result of the heat, relieves to some extent congestion of the internal organs and lessens pain. It is well to keep the head cool by the application of cold cloths during such a bath, as for some persons it is weakening; also the pulse should be observed from time to time.

Tapeworm

To the Editor:—Is there a satisfactory remedy or an exterminator for tapeworm? I have a tapeworm and have not been able to get relief through my local physician. I have been thinking that perhaps his remedy is a little old and that a newer and surer one may be known to medical science. H. E. M., Virginia.

Answer.—Tapeworms can usually be removed successfully by the standard remedies, which have been known for a good many years. Perhaps the one most commonly used is the extract of male fern; another is the remedy known as pelletierine, an extract of the bark of the root of the pomegranate. Much depends on the method in which any remedy is given, following a period of fasting and the administration of a laxative. It is important to watch the subsequent discharges in order to discover the passage of the head of the worm. Sometimes one remedy succeeds when others have failed.

Kousso and ground pumpkin seeds have also been used successfully. One should rely on a physician to direct the treatment.

Skin Injury by X-Ray

To the Editor:—Could you give me a remedy for an injury to my skin? At one time I had x-ray treatments on my face and when I became run down this winter my skin wrinkled some and turned dark in one place. As I am only 25 I am suffering a good deal of anxiety and am staying in most of the time. I read that witch hazel was good for wrinkles but was afraid to use it as my skin is tender and might become worse if irritated.

M. F. G., Connecticut.

Answer.—Similar experiences with the x-ray are not uncommon. Some advertised quack treatments for superfluous hair make use of the x-ray and in a considerable proportion of these cases there follows severe inflammation of the skin, with such changes as are described above. It is not possible to find any particular remedy for this condition, because what is best to do depends on the severity and character of the results that have followed. The young woman should consult a competent specialist in diseases of the skin.

Snake Stories

To the Editor:—Today, in our study of Reptilia, I asked our instructor what element or compound there was in a certain plant that counteracted the poison of a copperhead's bite. What made me ask was the experience of a young man who had gone out to hunt. This was some fifty years ago. On his way home, this young man heard a peculiar sound in the leaves. Turning aside to investigate the cause, he discovered a blacksnake and a copperhead fighting. Each time the blacksnake was bitten it would go a little way off to a certain plant and rub the part of its body that had been bitten against the plant, and then would go back to the battlefield and resume fighting. The young man, noticing this, was curious to see what would happen if he should pull up the plant. He did so while the snakes were fighting. When the blacksnake came back and could not find the plant, it gradually became weaker until the young man thought that it must be dead. To verify his belief, he visited the scene again the next day and found the blacksnake lying where he had left it, dead. My professor said he had heard of some such a story, but had been unable to find any proof that such a plant existed, and attributed the story as a tradition. But I have heard my grandparents tell of a rare plant that had the power of counteracting the poison from a copperhead, if the plant was applied to the wound soon after it had been made. There is another plant, known as snake weed, that is still used in that community, for the doctor lives 7 miles away and often times he cannot reach his patients quickly. One evening a young girl was bitten by a copperhead. Her father immediately went in search of this snake weed. It took him two or more hours to get it. Then he brought it home, washed it clean, and boiled it in milk. The girl drank the milk, and a poultice made of the roots, leaves and stocks was bound tightly on the bite. The doctor was called immediately but did not arrive until the next morning. He admitted that he could not have done anything that would have helped her any more than the snake weed had done. Would you kindly tell me your views on this subject?

G. G., Ohio.

Answer.—There is no warrant for the belief that any plant rubbed onto a snake bite neutralizes the poison. There are serums prepared for various types of snake poisons—cobra, rattlesnake and others—and if the serum is injected promptly after the bite is received it is helpful in antidoting the poison.

While the observation of the snake fight by the young man may have been correct, his explanation of the outcome certainly was not. It is a common belief that there is somewhere or other a plant or other drug that is a cure for each ailment afflicting mankind, but science has proved that this is not the case. Less and less reliance is placed in these days on drugs, for when they are tested by the accurate methods of the laboratory they are found not to produce the effects they have been thought to produce.

Torrified Bread

To the Editor:—How true is it that torrified bread (bread toasted dark brown, nearly burned) is the best bread for rheumatics, dyspeptics and for those in whose stomachs starches ferment and form acids? I have heard it said that torrified bread does not form acid or ferment.

M. M. B., Indiana.

Answer.—Toasting or heating breads still further as in torrifying converts a considerable amount of the starch into dextrin and some of it is burned to a carbon. This would be much less likely to ferment and form acid than untoasted bread but it would not be entirely free from the possibility of fermentation.

Syphilis

To the Editor:—How many doses of arsenic does it take to cure completely a case of long standing syphilis? Where can one have good treatment, in a hospital or with a private doctor? What is the effective remedy for syphilis, "606" or other newer remedies? If syphilis is curable, how long does it take to be cured?

G. A., Massachusetts.

Answer.—It is not possible to say how long and in what dosage preparations of arsenic (arsphenamine) must be given in a particular case to effect a satisfactory cure.

Most of the remedies used in the treatment of syphilis are simply variations of the original "606," with the addition in special cases of preparations of mercury, bismuth and the iodides.

Chlorine in Drinking Water

To the Editor:—Please let me know the name of the chemical that is put in Chicago drinking water. Is the water harmful to drink if a person has Bright's disease and arteriosclerosis? Would it interfere with the reduction of edema?

F. C. S., Illinois.

Answer.—Chicago water is made safe by the use of chlorine. In the quantity used, there is no danger of harm to one with Bright's disease and arteriosclerosis. It should not interfere with the reduction of edema.

Thyroid Enlargement

To the Editor:—For several months I have taken iodine for an enlargement of the thyroid gland. My physician advises me to take x-ray treatments. While the enlargement is not very noticeable, it is annoying, often choking me at night. Most of my friends seem to think that I will have to have an operation eventually. It seems to me that if the x-ray treatments would absorb the poison and the results would be permanent, it would be the more sensible course to take, for I would still have the gland to function as nature intended or would it be useless after the x-ray treatments? H. H. S., Kansas.

Answer.—As a rule, the best treatment for enlargement of the thyroid gland is surgical removal, but some good results have been obtained in certain types of thyroid gland enlargement by the use of the x-ray. The only person who can advise wisely is the physician who has seen the patient and studied the case.

Cod Liver Oil

To the Editor:—Do you recommend the giving of cod liver oil to children of 6? In case of biliousness, is the taking of calomel dangerous? Is the use of an internal bath apparatus beneficial or is it apt to cause the bowels to lose their power of functioning? H. M., Wyoming.

Answer.—Children as old as 6 years who get plenty of air and sunshine and a proper diet seldom need cod liver oil. If there are any symptoms or signs that would seem to indicate the desirability of giving cod liver oil, a physician should be consulted.

It is never wise to use such a drug as calomel, except under the physician's advice and direction. The same is true of the so-called internal bath.

Choosing a Physician

To the Editor:—Please give me some simple data as to how medical advisers (physicians and dentists) may be selected or judged? A. L., Connecticut.

Answer.—An editorial that appeared in HYGEIA in May, 1924, gives points to be considered in selecting a suitable physician. It is not possible to devise any direct or certain means by which a person can be advised as to the best physician in a particular locality or to the best specialist in any branch of medicine. That is always a matter of opinion in which doctors themselves differ.

One who has access to the American Medical Directory through the public library will find in that volume specific information about every physician in the United States, which will be of value in selecting a doctor.

Worms

To the Editor:—A recent newspaper article declares that roundworms are very prevalent and that they may bring on such conditions as pneumonia and Bright's disease. Is this authentic? M. H., South Dakota.

Answer.—French and Russian medical literature contain reports of cases of various disease conditions produced by a common worm, *Ascaris lumbricoides,* such as acute hemorrhagic necrosis of the pancreas, embolus of the bile duct, abscesses of the liver, ulceration of the intestines and appendicitis.

Most persons infested with roundworms, however, show mild symptoms, some so mild that the only signs of infestation are the elimination of the worms or the finding of ova in the feces. If more severe symptoms are manifested, such as diarrhea and abdominal cramps, the lungs may be involved. If the infestation is heavy, enough toxic substances are absorbed to produce mental symptoms.

Occasionally the larvae in the process of migration become lodged in the liver, kidney, bile duct and folds of the peritoneum, producing abscesses; or the worms may crawl into the appendix, producing appendicitis. In one hospital consulted there had been a number of patients who were infested with *Ascaris lumbricoides,* but only one patient showed mental symptoms; the others either passed worms or had diarrhea or abdominal cramps.

The general impression is that most people are infested with *Ascaris lumbricoides;* as a matter of fact under American climatic conditions the percentage is small, perhaps not more than 1 per cent. In rural communities the percentage is much higher but in spite of the fact that many people, especially children, are infested with eggs and worms only a few of those show severe symptoms. This may be explained by a balanced diet.

The effect of diet on infestations with *Ascaris lumbricoides* has been shown clearly by Dr. Hiraishi of Japan. He fed larvae of *Ascaris lumbricoides* to twenty pigs and only one developed ascariasis. Then he fed pigs on a diet deficient in vitamin A and gave them larvae nine, eighteen and forty-seven days after commencing the special feeding. There followed heavy infestations. To show the importance of vitamin A, he followed the same procedure with other pigs, adding cod liver oil to their diet, and none were infested.

High Specific Gravity of Urine

To the Editor:—In a recent examination, my urine was found to have a specific gravity of 1.030, which is above normal. What is the cause of this and is it serious? What is the relation, if any, between a high specific gravity and diabetes? I. J., Minnesota.

Answer.—High specific gravity may result from ingredients in the urine other than sugar and so a specific gravity of 1.030 is not uncommon. When it is much higher than this it is almost always due to the presence of sugar. One of the best ways of reducing specific gravity is the free use of water. The inquirer should try to drink twice as much water during the day as he now does.

Left Handedness

To the Editor:—My little boy, 7 years old, has always been left handed. He is in the first grade. During the past two weeks he has decided he wants to try to write with his right hand and, because his teacher rewards him for his efforts, he is determined to try to change. Of course the letter formations look wobbly, but they are good for a beginner. He is willing to do whatever we tell him is best. He is naturally a nervous child. M. R. H., Texas.

Answer.—The question of training a young child who has always been left handed cannot be answered positively in any individual case. We all know of many left-handed people who have learned to write with their right hand and who show no ill effects from the change. However, there are many cases in which it is obvious that serious difficulties have followed such a change in handedness, particularly in the hand that is used for writing.

The situation may be summed up by saying that such a change in many children may be accomplished with no resultant difficulty, but in some children difficulties will result. Therefore we must consider that a change of handedness from the native hand is fraught with potential dangers even when the child is willing to make the shift without enforcement. It would seem to be the safer course to encourage a left-handed child to continue with the use of that hand. This is usually easier to do if it is explained to the child that left handedness is in no sense an abnormality, and, except for certain handicaps which the left-handed child must face because of the building of most tools for right-handed use, there is no reason to look upon left handedness as inferior to right handedness.